MAC2601 EXAM PACK

EXAM REVISION PACK 2015

Written by **Class of 2015**

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Welcome

If you are reading this message then you are doing **(MAC2601)** with UNISA. These are being compiled by our Together We Pass team for our students who are registered for MAC2601this term, and will be built upon year on year to create the best set of questions, with suggested solutions, with the possibility of including hints and tips in the future.

Please note that this is not the exam scope, but this document will work as supplementary study material which will help you prepare for the coming exams. It's work in progress and we will make changes and amendments to the document as we progress.

Good luck this term, and we look forward to working with you!

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QUESTION 1

Electrix Limited, a South African based manufacturer, manufactures a single product that is used in a variety of electrical products, in one process. The following information is available for September 2013:

Work-in-process   -   1 September 2013 ....24 000 units
- Material   -   100% complete R200 000
- Conversion costs   -   95% complete R607 200

Material issued for 44 000 units...R888 560
Conversion costs..R2 033 096
Units completed...50 000 units

Work-in-process   -   30 September 2013 ....10 000 units
- Material   -   100% complete...
- Conversion costs   -   75% complete...

Additional information:

1.   Material is added at the beginning of the process. Conversion costs are incurred evenly throughout the process.
2.   Normal spoilage is estimated at 10% of input that reaches the point of spoilage.
3.   Losses occur at the end of the process.
4.   Stock is valued according to the first-in first-out method.

REQUIRED:

(a)   Prepare the following statements for September 2013:

      (i)   Quantity statement   (6)
      (ii)   Production cost statement   (3)
      (iii) Cost allocation statement   (6)

(b)   Prepare the quantity statement if normal spoilage occurs when the process is 80% complete.   (5)

QUESTION 2

STG Limited uses a standard costing system and manufactures a single product, Caniv. The management of STG Limited has compiled the following Standard Costs Information Sheet:

Caniv
Product Standard Costs for the month ended 31 October 2013:

	Material code	Quantity (kg)	Standard price per kg	Total
Direct material	AV-736	5	R10	R50
		Total material costs		**R50**

	Job number	Standard hours	Standard rate per hour	
Direct labour	1	3	R15	R45
		Total labour costs		**R45**

Manufacturing overheads (variable with production)	Standard variable manufacturing overhead rate (per unit of production)	
	?	?
	Total manufacturing overheads	?

TOTAL STANDARD COSTS	?

Additional information:

1. No fixed manufacturing overheads were incurred by STG Limited.

2. The following information is available regarding the variable manufacturing overheads of product Craze-E:

   Budget:
   Variable manufacturing overheads
   (vary with **production**)   R54 000
   Normal capacity   12 000 units

   Actual results:
   Variable manufacturing overheads
   (vary with **production**)   R58 000
   Production   11 500 units

3. Actual material and labour costs for the month ended 31 October 2013 were as follows:
   Direct material   R632 500
   Direct labour (35 640 labour hours)   R516 925

REQUIRED:

Calculate the following for October 2013 (round off amounts to two decimal places):

(a)   The standard variable manufacturing overhead rate   (1½)

(b)   The variable manufacturing overheads rate variance
        (in respect of overheads that vary with production)   (2½)

(c)   The variable manufacturing overheads efficiency variance
      (in respect of overheads that vary with production)   (1)

(d)   The total variable manufacturing overheads variance
      (in respect of overheads that vary with production)   (1)

(e)   The total material variance   (2½)

(f)   The labour efficiency variance   (3)

(g)   The labour rate variance   (3)

(h)   The total labour variance   (1)

(i)   The standard selling price if 11 500 units were actually sold at R132 per unit,
      with a selling price variance of R51 000 (unfavourable)   (2½)

(j)   The amount of direct labour costs to be recorded in the **Production Account** of
      the general ledger and whether the account has to be debited or credited with
      this amount   (2)

QUESTION 3

The following information was extracted from the accounting records of Pinky Ltd for the year ended 31 August 2013 and their 2014 budget:

	2013 Actual	2014 Budget
Total manufacturing cost per unit	R15,15	???
Completed units beginning of the year	4 000	8 000
Manufactured for the year	35 000	???
Sales for the year	???	42 000
Fixed costs		
Production	???	R325 000
Selling and administrative	???	R158 000
Variable cost per unit		
Production	R10,20	R11,00
Selling and administrative	R 1,25	R 1,40
Stock valuation method	FIFO	FIFO

Pinky Ltd
Budgeted Income statement for the year ended 31 August 2014

	R
Sales	1 050 000
Less: Cost of sales	803 918
Opening stock	121 200
Production costs	721 000
Less: Closing stock	(38 282)
Gross profit	246 082
Less: Selling and administrative costs	(216 800)
Net profit before tax	**29 282**

REQUIRED:

(a) What is the method of cost determination used in the income statement given above,
     direct or absorption costing?   (1)

(b) Calculate the budgeted number of units manufactured during 2014.   (3)

(c) Calculate the budgeted number of units on hand at 31 August 2014.   (2)

(d) Draft the budgeted income statement for the year ended 31 August 2014 using the direct
     costing method.   (10)

(e) Reconcile the difference in net profit before tax between the income statement given, and
     the income statement in (d).   (4)

QUESTION 4

THIS QUESTION CONSISTS OF THREE INDEPENDANT PARTS:

PART A

NLC Limited is a construction company. On 1 March 2012 the company entered into a contract with Mino Limited to build an office block for R25 000 000. On 15 May 2012 an additional contract was entered into for extras amounting to R1 500 000. The cost accounting section of NLC estimated that the costs to complete the contract will be R23 000 000.

The following information is applicable to the year ended 28 February 2013:

Mino Limited paid out the following amounts:

- 15 April 2012	–	R2 250 000
- 15 June 2012	–	R2 250 000
- 15 August 2012	–	R2 250 000
- 15 October 2012	–	R2 250 000
- 15 February 2013	–	R2 250 000

These amounts are 90% of the work certified.

Material:

- Since the start of the contract, material to the value of R9 400 000 was issued.
- On 28 February 2013 stock with a cost price of R860 000 was on hand.
- During January 2013, stock with a cost price of R320 000 was sold for R352 000.

From 1 March 2012 until 28 February 2013, an amount of R3 300 000 was spent on direct labour and R700 000 on overheads.

Machinery:

Machinery to the value of R4 600 000 was transferred to the building site. The value of the machinery on 28 February 2013 was R2 300 000. During November 2012, obsolete machinery were sold for R800 000.

REQUIRED:

(a)   Calculate the total costs to date.   (7)

(b)   Calculate the total estimated profit on the contract.   (2)

(c)   Calculate the profit for the year ended 28 February 2013 that should be transferred to the income statement if the percentage of completion method is applied to determine the profit according to the ratio of costs to date to total estimated costs.   (6)

PART B

EASY PIC Limited manufactures picture frames. The following information was extracted from the budget for the year ended 30 September 2013:

Break-even Quantity	20 000 units
Selling price per picture frame	R50,00
Variable production cost	
Direct material	R15,00
Direct labour	R12,00
Overheads	R 8,00
Fixed costs	???
Marginal income	???
Completed units 01/10/2012	5 000
Completed units 30/09/2013	2 000
Tax rate	28%
Stock valuation method	FIFO(First-in-first-out)

REQUIRED:

(a) Calculate the marginal income per picture frame.   (2)

(b) Calculate the fixed cost for the year.   (2)

(c) Calculate the break-even-value.   (2)

(d) Management aims to achieve an after-tax profit of R1 080 000. How many units would have to be sold if the selling price remained the same?   (5)

(e) If the units sold in (d) were achieved, how many units would EASY PIC have to manufacture?   (2)

(f) Calculate the margin of safety ratio if the expected sales is the same as in (d).   (2)

PART C

ABC(Pty) Limited manufactures three products and uses an ABC system. The names of the three products are Pink, Blue and Yellow. The entity uses the same machinery (machine Blicks for assembly and machine Max for compression) to manufacture all three products. Pink and Blue tend to put a lot of pressure on machine Blicks and therefore the technician needs to inspect the machine frequently.

Manufacturing overheads for the month of October 2013 were as follows:

	R
Assembly	750 000
Compression	840 000
Indirect labour (technician salary)	12 000
TOTAL	**1 602 000**

Additional information:

1. The following information for October 2013 has been obtained from the manufacturing department:

Machine	Number of set-ups	Number of technician inspections
Blicks	10	5
Max	8	-
TOTAL	**18**	**5**

2. The following information also relates to October production:

Product	Units manufactured	Number of set-ups required Assembly	Compression	Number of techni-cian inspections necessitated
Pink	8 000	3	3	2
Blue	5 000	5	4	2
Yellow	3 000	2	1	1
TOTAL	**16 000**	**10**	**8**	**5**

3. Management has determined that the number of set-ups of the relevant machine is an appropriate cost driver regarding the activities of assembly and compression and that the number of technician inspections is an appropriate cost driver for the inspection activity. All activity costs were deemed material in size and justified separate treatment. The only task of the technician is to inspect the assembly machine.

REQUIRED:

Calculate the following (round off all amounts to two decimal places):

(a)   The activity rates to be used for:
- Assembly   (1)
- Compression   (1)
- Inspection activity   (1)

(b)   The overhead costs per unit for each of the products   (7)

QUESTION 5

The following information was extracted from the accounting records of Abel Ltd for the months ended 31 July 2013 and 31 August 2013 respectively:

	Units	R
Month ended 31 July 2013		
Sales for the month	900	21 600,00
Production for the month	1 000	
Finished units at the beginning of the month	nil	
Variable production costs per unit		5,40
Variable selling and administration costs per unit		3,00
Fixed production costs		4 600,00
Fixed selling and administration costs		3 100,00
Month ended 31 August 2013		
Selling price per unit		25,00
Sales for the month	800	
Production for the month	900	
Variable production costs per unit		6,50
Variable selling and administration costs per unit		3,00
Fixed production costs		5 994,00
Fixed selling and administration		3 100,00

Additional information:

1.   The company uses the first-in-first-out method for the valuation of the stock.

2.   The increase in the fixed production cost is due to a new rental agreement in respect of the factory.

3.   There were no stock losses during any of the two months.

REQUIRED:

(a)   Prepare the income statement for August 2013 according to:

    (i)   The direct costing method   (8)
    (ii) The absorption costing method   (10)

The format of the two income statements must clearly illustrate the difference between the two methods.

(b)   Reconcile the difference in profits according to the two methods.(3)

QUESTION 6

The following information was extracted from the accounting records of Billy Limited, a manufacturer of portable organs, for the year ended 30 June 2013 and from the 2014 budget

	Actual 2013 Units	Budget 2014 Units
Completed stock at the beginning of the year	nil	?
Production for the year	300	310
Sales for the year	260	300
	R	R
Selling price per unit	19 000	18 000
Variable costs per unit:		
Production:		
Direct material	4 600	4 400
Direct labour	1 600	2 000
Overheads	1 200	1 100
Total:	7 400	7 500
Selling and administrative	1 000	900
Fixed costs:		
Production	390 000	418 500
Selling and administrative	136 000	130 000

Additional information:

1. There were no losses during the 2013 year and no provision for losses are made for 2014.

2. The company uses the weighted average method for the valuation of stock.

REQUIRED:

(a)   Prepare budgeted income statements for 2014 according to:

   (i)   the absorption costing method   (8)
   (ii) the direct costing method   (6)

The format of the two income statements must clearly illustrate the difference between the two approaches. (Calculate the value of total stocks to the nearest rand).

(b)   By considering each of the following situations **independently** and by ignoring the opening stock at 1 July 2013, calculate the following for 2014:

(i)   The budgeted break-even value.   (2)

(ii)   The budgeted margin of safety ratio (show your
               calculations up to two decimals).   (2)

(iii)   The budgeted total marginal income that can be
               realised if an additional 60 organs are sold.   (3)

(iv)   The budgeted number of units that must be sold to generate a marginal income that will
cover the fixed
               costs, if variable costs increases by 10% (round off to
               the next completed unit).   (3½)

(v)   The budgeted selling price per unit to realise a net
               profit of R1 000 000 if variable cost increases by 10%. (3½)

QUESTION 7

Tantan Ltd manufactures plastic tables. The following information was extracted from the budget for the year ending 30 September 2014:

1. Total production capacity (100%) : 1 000 units

2. Selling price per table : R500

3. Variable production cost (per table)   **R**
   - Direct material 120
   - Direct labour 80
   - Overheads 40

4. Fixed production overheads   90 000

5. Selling and administrative expenses
   - Salary of sales manager for the year 60 000
   - Sales commission: 5%

6. Income tax rate 30%

7. Stock on hand at 1 October 2013   Nil

REQUIRED:

(CONSIDER   EACH OF THE FOLLOWING SITUATIONS-
INDEPENDENTLY)

(a) Calculate the budgeted break-even value by using the marginal income ratio if the company spends R145 000 on advertising. (4)

(b) Calculate the budgeted break-even selling price per unit if 600 units
    are sold.   (5)

(c) Calculate the number of units which must be manufactured and sold if the selling price decreased to R480 per unit and the company
    wishes to earn an after tax profit of R56 940.   (5)

(d) Calculate the variable cost per unit if the fixed costs and the selling price per unit remains unchanged but the break-even quantity changes to 600 units.

                                                                   (5)

QUESTION 8

W mass Limited manufactures a single product. The following is the income statement for the year ended 30 April 2014, in which only 75% of
the normal production capacity was utilized:

	R	R
Sales @ R250 per unit		3 000 000
<u>Less</u>: Manufacturing costs		1 872 000
Direct material	792 000	
Direct labour	240 000	
Variable overheads	240 000	
Fixed overheads	600 000	
Gross profit		1 128 000
<u>Less</u>: - Selling and administrative expenses		560 000
- Fixed	200 000	
- Sales commission (12% of sales)	360 000	
Net profit		568 000

<u>Additional information</u>:

Budget for 2014 - 2008:

During April 2014, management planned the budget and considered various alternatives for the year 1 May 2014 to 30 April 2008. The following conclusions were made; inter alia.

- **All** variable costs will increase by 5%.
- Sales could increase to 80% of the normal production capacity if the selling price is decreased by 10%.

Special order:

For October 2014 a special order was received based on a selling price of R140 per unit. The following information is applicable to this order if it is accepted:

1. Should the company decide to increase production to 80% of the nor-mal capacity, 50% of the remaining capacity will be utilised by this order.

2. The order must be delivered in equal monthly quantities during the year ending 30 April 2008.

3. A temporary assistant to the production manager will have to be appointed at R4 000 per month for the period to complete the order.

4. A commission of only 3% in respect of this order will be payable to the sales manager.

REQUIRED:

(a) Advise management if the company should during the coming financial year maintain the production level of 75% of the normal
capacity at the present selling price **or** increase the production
level to 80% of the normal capacity with the reduction in selling
price.   (16)

(b) Advise management if the special order should be accepted.
(Show all your calculations in (a) and (b)).   (9)

QUESTION 9

Naison Limited manufactures plastic chairs and uses a standard costing system.

The following is the standard variable cost per chair:

	R
Plastic @ R6,00 per kg	15,00
Labour @ 1,5 hours	18,75
Variable overheads	
- Varying with hours worked: 1,5 hours @ R9,00 per hour	13,50
- Varying with production	7,25

The following are the actual results for March 2014:

Plastic purchased	28 000 kg
Labour	20 000 hours
	R
Variable overheads	
- Varying with hours worked	167 000
- Varying with production	80 000
Material purchase price variance (Unfavourable)	7 000
Labour rate variance (Favourable)	5 000
Sales	603 000

Additional information:

1. The budgeted selling price is R50,00 per unit.

2. 12 000 units were manufactured and sold during March 2014.

3. There were no completed units, work in progress or material on hand at the beginning or end of March 2014.

REQUIRED:

Calculate the following for March 2014:

(a) Actual material purchase price per kg (4)

(b) Material quantity variance (2½)

(c) Actual labour rate per hour (4)

(d) Labour efficiency variance (2½)

(e) Variable overheads efficiency variance in respect of overheads varying with hours worked. (2½)

(f) Variable overheads efficiency variance in respect of overheads varying with production. (1)

(g) Variable overheads spending variance in respect of overheads varying with hours worked. (2½)

(h) Variable overheads spending variance in respect of overheads varying with production. (2½)

(i) Selling price variance. (2½)

QUESTION 10

Belina Limited manufactures a single product and uses a standard costing system.

1. The standard variable cost per product is as follows:

	R
Direct material - 4 metre at R3,50 per metre	14,00
Direct labour - 1,5 hours at R8,00 per hour	12,00
Variable manufacturing overheads varying with hours worked - 1,5 hours at R2 per hour	3,00
Variable selling and administrative overheads	7,50

2. Budgeted selling price per product — 60,00

3. The following are the actual results for March 2014 in which 20 000 products were manufactured and sold:

    -   Sales amounted to R1 240 000.

    -   The total cost of material purchased was R292 500 at R3,75 per metre. All the material was used to manufacture the 20 000 units. There were no opening or closing stock.

    -   The total labour cost was R253 500 at a rate of R7,80 per hour.

	R
- Variable manufacturing overheads	68 250,00
- Variable selling and administrative overheads	118 000,00

REQUIRED:

(a) Calculate the following variances for March 2014

    (i)   Material purchase price variance   (2½)

    (ii)   Material quantity variance   (2½)

    (iii)   Labour rate variance   (2½)

    (iv)   Labour efficiency variance   (2½)

    (v)   Variable overhead spending variance in respect of overheads varying with hours worked   (2½)

    (vi)   Variable overhead efficiency variance in respect of overheads varying with hours worked   (2½)

    (vii) Variable selling and administrative overhead spending variance   (2½)

    (viii) Selling price variance   (2½)

(b) Calculate the actual labour hours worked during March 2014 if the **fictitious** labour efficiency variance had been R8 000 (favourable).   (4½)

(c) Calculate the actual cost price per metre for March 2014 if **the fictitious** material purchase price variance had been R15 600 (favourable).   (4½)

QUESTION 11

Melbar (Pty) Ltd. uses a job costing system. Manufacturing overheads are allocated to jobs on the basis of a predetermined rate of 50% of direct labour cost. The budget for April 2015 estimated that direct labour would be 12 500 hours at a budgeted rate of R50 per hour.

On 1 April 2015, the ledger of the company revealed the following information:

	R
Materials on hand	150 000

Finished goods

• Job J	117 000
• Job L	6 000

Work in progress control account

• Job M	64 000
• Job N	72 000
• Job P	56 000

The following transactions took place during April 2015:

1. Jobs Q and R were started in the current month.

2. Jobs N and R were completed during April 2015 and Job N was invoiced to a customer at a profit of 25% of cost price.

3. Material purchases amounted to R164 000.

4. Material issued:

	R
• Job N	26 000
• Job P	12 000
• Job Q	48 000
• Job R	60 000
Indirect material	16 000

5. Labour costs were as follows:

Direct labour	R
• Job M: 1 000 hours @ R44 per hour	44 000
• Job N: 2 000 hours @ R50 per hour	100 000
• Job P: 1 500 hours @ R50 per hour	75 000
• Job Q: 2 000 hours @ R48 per hour	96 000
• Job R: 1 000 hours @ R46 per hour	46 000
Indirect labour	98 000

6. Other costs incurred during the month:

• Rent of factory	30 000
• Selling and administrative costs	86 000
• Depreciation of machines	36 000

REQUIRED

Prepare the following general ledger accounts (properly balanced):

- Material control (this account is used for all direct and indirect materials) (2)
- Work in progress (WIP) control (9)
- Factory Salaries and Wages control account (this account is used for all direct and indirect labour) (1)
- Finished goods control (3½)
- Factory Overhead control (4)
- Cost of sales (1)
- Sales (1)
- Trading account (1½)

QUESTION 12

Applicable to PARTS A – H (scenarios 1 – 8)

Mpumalanga (Pty) Ltd.
manufactures a single product
and uses a process costing
system. Materials are added at
the beginning of the process and
conversion takes place evenly
throughout the process.

<u>May 20x5</u>

Opening WIP (20% complete)	80 000 units	Material R320 000	CC R128 000
Put into production	140 000 units	Material R588 000	CC R1 663 000
Completed and transferred	180 000 units		
Closing WIP	20 000 units		

Normal wastage amounts to 5% of the inputs that reach the wastage point.

"CC" refers to conversion costs in this question.

PART A – Scenario 1

<u>Additional information:</u>
- Wastage occurs when the process is 20% complete.
- The company uses the weighted average method of inventory valuation.
- Closing WIP is 90% complete.

REQUIRED

(a) Prepare the quantity statement for scenario 1.   (7)
(b) Prepare the production cost statement for scenario 1.   (3)
(c) Calculate and allocate the Rand value of the normal loss for purposes of the
     cost allocation statement of scenario 1.   (8)
(d) Prepare the cost allocation statement for scenario 1.   (8)

PART B – Scenario 2

<u>Additional information:</u>
- Wastage occurs when the process is 60% complete.
- The company uses the weighted average method of inventory valuation.
- Closing WIP is 90% complete.

REQUIRED

(a) Prepare the quantity statement for scenario 2.   (7)
(b) Prepare the production cost statement for scenario 2.   (3)
(c) Calculate and allocate the Rand value of the normal loss for purposes of the
     cost allocation statement of scenario 2.   (8)
(d) Prepare the cost allocation statement for scenario 2.   (8)

PART C – Scenario 3

Additional information:
- Wastage occurs when the process is 15% complete.
- The company uses the weighted average method of inventory valuation.
- Closing WIP is 10% complete.

REQUIRED

(a) Prepare the quantity statement for scenario 3. (7)
(b) Prepare the production cost statement for scenario 3. (3)
(c) Calculate and allocate the Rand value of the normal loss for purposes of the
cost allocation statement of scenario 3. (8)
(d) Prepare the cost allocation statement for scenario 3. (8)

PART D – Scenario 4

Additional information:
- Wastage occurs at the end of the process.
- The company uses the weighted average method of inventory valuation.
- Closing WIP is 90% complete.

REQUIRED

(a) Prepare the quantity statement for scenario 4. (7)
(b) Prepare the production cost statement for scenario 4. (3)
(c) Calculate and allocate the Rand value of the normal loss for purposes of the
cost allocation statement of scenario 4. (8)
(d) Prepare the cost allocation statement for scenario 4. (8)

PART E – Scenario 5

Additional information:
- Wastage occurs when the process is 20% complete.
- The company uses the FIFO method of inventory valuation.
- Closing WIP is 90% complete.

REQUIRED

(a) Prepare the quantity statement for scenario 5. (8)
(b) Prepare the production cost statement for scenario 5. (3)
(c) Calculate and allocate the Rand value of the normal loss for purposes of the
cost allocation statement of scenario 5. (8)
(d) Prepare the cost allocation statement for scenario 5. (8)

PART F – Scenario 6

Additional information:
- Wastage occurs when the process is 60% complete.
- The company uses the FIFO method of inventory valuation.
- Closing WIP is 90% complete.

REQUIRED

(a) Prepare the quantity statement for scenario 6. (8)

(b) Prepare the production cost statement for scenario 6. (3)
(c) Calculate and allocate the Rand value of the normal loss for purposes of the
cost allocation statement of scenario 6. (8)
(d) Prepare the cost allocation statement for scenario 6. (8)

PART G – Scenario 7

Additional information:
- Wastage occurs when the process is 15% complete.
- The company uses the FIFO method of inventory valuation.
- Closing WIP is 10% complete.

REQUIRED

(a) Prepare the quantity statement for scenario 7. (8)
(b) Prepare the production cost statement for scenario 7. (3)

(c) Calculate and allocate the Rand value of the normal loss for purposes of the
cost allocation statement of scenario 7. (8)
(d) Prepare the cost allocation statement for scenario 7. (8)

PART H – Scenario 8

Additional information:
- Wastage occurs at the end of the process.
- The company uses the FIFO method of inventory valuation.
- Closing WIP is 90% complete.

REQUIRED

(a) Prepare the quantity statement for scenario 8. (8)
(b) Prepare the production cost statement for scenario 8. (3)
(c) Calculate and allocate the Rand value of the normal loss for purposes of the
cost allocation statement of scenario 8. (8)
(d) Prepare the cost allocation statement for scenario 8. (8)

QUESTION 13

Beeva (Pty) Ltd. is a retail distributor of after-market automotive parts. The management accountant has prepared sales budgets for the six months from July to December 2015. These are presented below:

Month	July	August	September	October	November	December
Cash sales	35 000	50 000	30 000	25 000	35 000	20 000
Credit sales	495 000	450 000	430 000	525 000	425 000	520 000
Total sales	530 000	500 000	460 000	550 000	460 000	540 000

Additional information:

Collections from accounts receivable are as follows:

- 50% in the month of sale and is subject to a 2% settlement discount
- 30% one month after the month of sale
- 15% two months after the month of sale and the remainder is uncollectible.

Beeva (Pty) Ltd.'s inventory requirements are equal to 30% of the next month's total budgeted sales amount. (Inventory is purchased in the month preceding its expected sale.) The suppliers' terms of payment require that 45% be paid in the month of purchase and the balance is payable in the month after the month of purchase. All purchases are on credit.

January 2014 sales are expected to comprise credit and cash sales of R580 000 and R40 000 respectively. Beeva (Pty) Ltd. Is expected to have a bank overdraft of R50 000 on 31 October 2015. The bank overdraft is as result of a dividend payment to be made in October.

Selling and administrative costs amount to 50% of the monthly total sales and includes depreciation of R20 000 per month.

REQUIRED

Prepare a cash budget for Beeva (Pty) Ltd. by month for November and December 2015.   (10)

QUESTION 14

The following information applies to One man (Pty) Ltd. for the 20x7 financial year:

Standards **per unit** of the final product
Direct materials	R24
Direct labour (R90 per hour)	R18
Variable manufacturing overheads (vary with hours worked)	R10
Selling price	R70

Actual results
Direct materials (5kg per unit)	?
Direct labour (R94 per hour)	R1 034 000
Variable manufacturing overheads (vary with hours worked)	R500 000
Sales (50 000 units of the final product were produced and sold)	R3 400 000

Variances already calculated
Material quantity variance (unfavourable)	R100 000
Total material variance (favourable)	R50 000

REQUIRED

(a) Calculate the actual price per kilogram of direct material. (3)

(b) Calculate the following variances:
   (i) Labour rate variance (2)
   (ii) Labour efficiency variance (2)
   (iii) Total labour variance (2)
   (iv) Variable manufacturing overhead rate variance for overheads that vary
        with hours worked (2)
   (v) Variable manufacturing overhead efficiency variance for overheads that
        vary with hours worked (2)
   (vi) Selling price variance (2)

QUESTION 15

Hairdo (Pty) Ltd. is a company that manufactures hair shampoo for men. The shampoo manufactured by the company cleanses and fortifies hair, leaving it smooth and healthy-looking. The company has requested you as a management accounting pundit to assist them with their production structure. The following information relates to the different types of shampoo the company manufactures. A maximum of 250 production hours are available to the company on a monthly basis.

	Soothing Care	Sensitive Care	Classic Care
Expected monthly demand	8 000 units	12 000 units	7 000 units
Selling price per unit (R)	60	65	70
Production costs			
Variable manufacturing costs per unit (R)	20	25	15
Variable selling costs per unit (R)	5	3	4
Fixed cost (per unit based on production capacity)(R)	3,5	3,5	3,5
Labour hours required to meet demand for product	100	100	70

Additional information:

Hairdoalso incurs administrative expenses on a monthly basis to operate the business. Administrative expenses allocated based on production capacity is as follows for the different types of shampoos: Soothing Care R5 per unit, R3 per unit for Sensitive Care and R2 per unit for Classic Care.

REQUIRED:

1. Identify the limitation **(1)**
2. Calculate the contribution per unit of the product **(3)**
3. Calculate contribution per unit of the limiting factor **(3)**
4. Identify the order in which labour hours should be used to manufacture shampoos **(3)**
5. Allocate labour hours to the shampoos until there are no labour hours left **(3)**

QUESTION 16

Flash (Pty) Ltd. is a South African based company in the entertainment sector based in Johannesburg. The main activity of the company is to invite famous and mostly Grammy award winning artists to perform in South Africa. When the artists are in South Africa they usually perform in the large South African cities of Johannesburg, Cape Town and Durban.

Flashhave been pondering over the decision to bring a well known American artist into the South African shores for some time now. The company took a firm decision to invite in November 2015 an American artist called Leslie. The CEO of Flash is excited about Leslie coming to South Africa and even boasted to a friend about it.

Flash(Pty) Ltd. requested you to assist them with cost volume profit and profitability analysis.

A cost volume table was also prepared and you are provided with the following cost structure for Flash(Pty) Ltd. for the 2015 months listed below:

Month	Cost	Tickets sold
May	R120 000	20 000
June	R150 000	30 000
July	R140 000	26 000
August	R 90 000	15 000
September	R100 000	18 000
October	R130 000	25 000

Variable costs consist of the cost of a pack that revellers at the concert will be provided with at the entrance of the venue. The pack includes a bottle of wine and a snack. The proposed selling price of a ticket to go and see Leslie is R35.

REQUIRED

The Chief Executive of Flash as requested you to calculate the following:

1. The number of tickets that Flash have to sell in order to break even (7)
2. How many tickets have to be sold to earn R20 000 target profit (3)
3. What profit will result if 3 000 tickets are sold (3)
4. What selling price have to be charged to show profit of R40 000 on the sale of 3 000 tickets (4)
5. How many additional tickets have to be sold to cover R10 000 additional fixed costs of billboard advertisements next to the M2 highway and still break even (assume selling price of R35) (3)

QUESTION 17

The following information was obtained from the accounting records of Sasha (Pty) Ltd for the financial year ended 31 October 2013:

Month	Number of furnaces installed	Semi-variable costs
November	180	311 000
December	195	333 000
January	160	278 500
February	175	301 000
March	200	345 000
April	210	350 000
May	215	348 000
June	240	395 000
July	240	393 000
August	205	348 000
September	185	318 000
October	170	290 000

REQUIRED:

Use the least squares method to calculate the variable cost per unit and the fixed costs in total for the financial year. Use the following formulae and round off answers for (a) and (b) to two decimals:

$$\Sigma xy = a\Sigma x + b\Sigma x^2 \ldots\ldots\ldots\ldots \text{①}$$

$$\Sigma y = an + b\Sigma x \ldots\ldots\ldots\ldots \text{②}$$

(10)

QUESTION 18

INDEPENDENT PART A - MATERIAL

Crucial needs a certain type of steel pipes to construct a stage for an event that will be held in 2014. The company needs a cost accountant to help them with some important calculations.

The expected annual demand for the steel pipes will be 300 steel pipes per week, and the cost to place each order is R2 500 per order. The electricity and handling costs for one of these steel pipes are R129 per year. A steel pipe delivered to Crucial' central warehouse costs R900 per pipe. The company borrows funds at an interest rate of 8% to finance inventories.

Assume that Crucial has 52 weeks in a year and that their expected warehouse rent is R500 000 a year.

REQUIRED:

(a)   Calculate the Economic Order Quantity of steel pipes for Crucial.   (4)

INDEPENDENT PART B – OVERHEADS

Mega balance (Pty) Ltd has 2 production departments, VEEY and Wayne and 2 service departments, Yola and Yankee.

The **budgeted** manufacturing overheads for the year for the different departments are as follows (measured in Rands; the primary apportionment has already been done):

	VEEY	Wayne	Yola	Yankee
Budgeted overheads	600 000	200 000	100 000	50 000

More information about the departments is given below:

	VEEY	Wayne	Yola	Yankee
Floor area - m²	350	100	50	25
Number of employees	55	15	20	5
Budgeted direct labour hours	5 000	6 000	-	-
Actual direct labour hours	5 500	6 500	-	-

Additional information:

Mega balance' service departments' costs are allocated to production and service departments on the following bases and in the following sequence:

First   Yankee Floor area – m^2
Second   Yola   Number of employees

Overhead allocation rates are based on direct labour hours

REQUIRED:

(b) Calculate the budgeted overhead allocation rate for department Wayne. Round your answer to the nearest Rand.   (6)

QUESTION 19

You want it (Pty) Ltd presents you with the following information on a certain toy for the month of May 2014:

Date	Transaction details	
May		
1	Opening inventory	300 units @ R9,00 each
4	Purchased	250 units @ R9,50 each, freight charges of R75 were paid for this order
7	Issued	310 units to production
11	Returned	40 units bought on 4 May, to the supplier
15	Returned	10 units from factory to stores, manufactured from the last units issued

REQUIRED:

(a)   Prepare an inventory ledger card and calculate the value of inventory at 15 May 2014 using the FIFO method of inventory valuation.   (5)

(b)   Prepare an inventory ledger card and calculate the value of inventory at 15 May 2014 using the weighted average method of inventory valuation. Continually round to three decimals throughout your workings.   (5)

QUESTION 20

SAGOLE manufactures and sells one type of product. The following information was obtained for the year ended 31/12/2013 (actual) and 31/12/2014 (budget).

	31/12/2013	**31/12/2014**
	Units	**Units**
Production	6 000	8 000
Sales	6 500	7 500
Opening inventory (01/01/2013)	2 000	-

	R	R
Selling price per unit	500	600
Variable cost per unit:		
Direct material	150	150
Direct labour	120	140
Manufacturing overheads	60	80
Selling and administration	20	20
	350	390
Fixed costs:		
Manufacturing	700 000	770 000
Selling overheads	30 000	35 000
Administration overheads	20 000	25 000
	750 000	830 000

Additional Information:

The company uses the first-in-first-out method for the valuation of inventory.

REQUIRED:

(a)   Prepare the budgeted statement of profit or loss and other comprehensive income for the year ended 31/12/2014 according to:

    (i)   The direct costing method   (6)
    (ii)   The absorption costing method   (7)

The format of the two statements must clearly illustrate the difference between the two methods.

(b)   Reconcile the difference in net profit before tax according to the two methods.   (2)

Round off all amounts to the nearest **Rand.**

QUESTION 21

A nuclear energy company produces 3 unique products, Gamma-ray, Delta-ray and Echo-ray. The following estimated information is available for the year ended 31 May 2013:

Cost and operational information:

	Gamma-ray	Delta-ray	Echo-ray
Total number of nuclear inspections	5	10	10
Total number of safety inspections	27	15	18
Total number of orders	15	30	15
Production and sales (units)	2 500	2 000	4 000
Direct material (cost per unit)	R50	R30	R40
Direct labour (cost per unit)	R75	R40	R80

Manufacturing overhead costs:

	R
Safety inspection	180 000
Nuclear inspection	500 000
Ordering costs	60 000

REQUIRED:

(a)   Calculate the activity rates for safety inspections, nuclear inspections and ordering.(3)

Use the following format for your answer:

Activities	Overhead	Total cost driver	Activity rate
Safety inspections	R180 000		
Nuclear inspections	R500 000		
Ordering	R60 000		

(b)   Calculate the total manufacturing cost for product Gamma-ray, Delta-ray and Echo-ray respectively. (Use your answer in (1) and round to two decimal places throughout the question). (12)

Use the following format for your answer:

	Gamma-ray R	Delta-ray R	Echo-ray R
Direct material			
Direct labour			
Safety inspections			
Nuclear inspections			
Ordering costs			
Total manufacturing cost			

QUESTION 22

The Townhouse Pool Company maintains a job costing system. The following transactions and other information relate to the month of February 2014:

1. **Opening balances**

General Ledger	**R**
Material Inventory Control	100 500
Work-in-Process Control	40 800
Finished Goods	10 000

   Subsidiary Ledgers
   Materials Ledger

Material A	70 000
Material B	25 500
Consumable supplies	5 000

In the general ledger, a single material account (Material Inventory Control) is used for all direct and indirect materials.

Job cards	R
Job 1	40 800
Job 2	–

2. Purchase of materials

During the month, the Townhouse Pool Company bought Material A to the value of R47 000 and Material B to the value of R43 000. Materials A and B are direct materials.

The company also purchased R10 200 of consumable supplies for the manufacturing process.

3. Requisitioning of materials and supplies

On receipt of a properly prepared materials requisition form, the following direct materials and supplies are issued from inventory to production:

	R
Material A	111 000
Material B	46 000
Consumable Supplies	6 900

Direct materials to the value of R105 000 were issued to Job 1, and the balance of R52 000 to Job 2.

4. Labour costs

Total direct labour wages: R140 000 (Job 1: R100 000; Job 2: R40 000); indirect labour wages: R60 000; administrative salaries: R52 000.

In the general ledger, a single labour account (Factory Salaries and Wages Control) is used for all direct and indirect labour. Non-manufacturing labour has a separate account.

5. Other factory overhead costs

Electricity: R6 300; Repairs and maintenance: R10 900; Insurance: R3 600;
Property taxes: R5 500; Depreciation – Plant and machinery: R20 000.

6. Applied overheads

Factory overhead costs are applied to production using a rate of 80% of direct labour costs.

7. Completed units

Job 1 was completed and transferred to Finished Goods.

8. Units sold

Ten swimming pools, from Job 1, were sold for R350 000. The total manufacturing costs of these were R255 800.

REQUIRED:

Record the above balances and transactions in the General Ledger and the cost ledger.   (15)

QUESTION 23

Marines (Pty) Ltd manufactures a beauty product in a single process and uses a process costing system. The following information is available for January 2014:

	Units
Work-in-Process (opening)	25 000
- Percentage completion - 40%	
New units put into production during the current month	180 000
Completed	120 000
Work-in-Process (closing)	60 000
- Percentage completion - 70%	

Additional information:

1. Wastage takes place when the process is 40% complete.
2. Marines (Pty) Ltd applies the weighted average method of inventory valuation.
3. Raw materials are added at the beginning of the process.
4. Conversion takes place evenly throughout the process.
5. Normal losses are estimated as 5% of the units that reach the wastage point.
6. Cost data are as follows:

	R
Work-in-Process (opening)	
Material	508 000
Conversion	364 000
In January 2014	
Material	4 348 450
Conversion	6 137 600

REQUIRED:

(a) Prepare the quantity statement for January 2014.   (7)
(b) Prepare the production cost statement for January 2014.   (3)
(c) Calculate the Rand value of the normal loss in terms of **conversion** only.
     Round off amounts to the nearest Rand.   (1)
(d) Assume the Rand value of the normal loss in terms of **material** is R213 210.
     Indicate how the R213 210 will be allocated for the purposes of the cost
     allocation statement (hint: the cost allocation statement as such is not asked –
     the allocation **calculation** is what is required; if your total of the allocated parts add
     up to R213 211, this may be due to a rounding difference, which is acceptable).   (4)

QUESTION 24

Mega Chemicals manufactures three joint products (B-Chem, C-Chem and D-Chem) in one common process, but each product is capable of being further processed separately after the split-off point.

The data given below relate to January 2014:

	B-Chem R	C-Chem R	D-Chem R
Selling price at split-off point (per litre)	72	96	108
Selling price after further processing (per litre)	120	240	360
Further processing costs	240 000	120 000	270 000
Output from the process before further processing (litres)	3 500	2 500	2 000

Joint manufacturing costs incurred amounted to R480 000.

REQUIRED:

(a) Calculate how the joint manufacturing costs would be allocated between B-Chem, C-Chem and D-Chem under the following methods:

(i)	Physical standard method	(2)
(ii)	Market value at split-off point method	(3)
(iii)	Net realisable value at split-off point (NRV method)	(3)

(b) Define the following:

(i)	By-product	(1)
(ii)	Waste (scrap) product	(1)

Round off all amounts to the nearest **Rand.**

SOLUTIONS

QUESTION 1 (SOLUTION) (20 marks)

ELECTRIX LIMITED

(a)(i) Quantity statement for September 2013

Input	Details	Output	Material		Conversion Costs	
Units		Units	Units	%	Units	%
24 000	Work-in-process 1 Sept. 2013					
44 000	Put into production					
	Completed from:					
	Opening stock	21 600[1]	-	-	1 080	5
	Current production	28 400[3]	28 400	100	28 400	100
	Completed and trans	50 000	28 400		29 480	
	Spoilage					
	Normal	5 800[2]	5 800	100	5 800	100
	Abnormal	2 200[3]	2 200	100	2 200	100
	Work-in-process 30 Sept. 2013	10 000	10 000	100	7 500	75
68 000		68 000	46 400		44 980	

[1] 24 000 x 90%
[2] (68 000-10 000) x 10%
[3] Balancing figure

(ii) Production cost statement:

	Total R	Material R	Convention costs R
WIP-1 Sept. 2013	807 200	-	-
Current costs	2 921 656	888 560	2 033 096
	3 728 856	888 560	2 033 096
		888 560/46 400	2 033 096/44 980
	= 64,35	= 19,15	= 45,20

(iii) Allocation statement:

	R
Work-in-process 1 September 2013	807 200
Material (given)	200 000
Conversion costs (given)	607 200
Current production	2 233 856
Material (28 400 x 19,15)	543 860
Conversion costs (29 480 x 45,20)	1 332 496
Cost of normal loss allocated	357 500[1]
Cost of production transferred	3 041 056
Abnormal loss	157 300
Material (2 200 x 19,15)	42 130
Conversion costs (2 200 x 45,20)	99 440
Cost of normal loss allocated	15 730[1]
Work-in-process 30 September 2013	530 500
Material (10 000 X 19,15)	191 500
Conversion costs (7 500 X 45,20)	339 000
Total costs to be allocated as per production cost statement (calc.(a) (ii))	3 728 856

[1]First calculate normal loss as follows: 5 800 x 64,35 = R373 230

This normal loss of R373 230 is allocated as follows:

	Units	Ratio	Amount allocated
Units completed and transferred	50 000	(50 000/52 200 x 373 230)	357 500
Abnormal loss	2 200	(2 200/52 200 x 373 230)	15 730
Total	52 200		373 230

(b) Quantity statement for September 2013

Input Units	Details	Output Units	Material Units	Material %	Conversion costs Units	Conversion costs %

24 000
44 000
	Work -in -process 1 Sept. 2013
	 Put into production
	Completed from
	  - Opening stock
	  - Current production
		
		24 000[1]
		26 000[2]
			
			-
			26 000
				
				-
				100
					
					1 200
					26 000
						
						5
						100

	Completed and transferred	50 000	26 000	100	27 200	100
	- Normal Loss - Abnormal Loss Work-in-process 30 Sept. 2013	3 400[3] 4 600[2] 10 000	3 400 4 600 10 000	100 100 100	2 720 3 680 7 500	80 80 75
68 000		68 000	40 600		38 380	

[1] Opening WIP reaches the wastage point last month
[2] Balancing figure
[3] (44 000 -10 000) x 10% = 3 400

QUESTION 2(SOLUTION) (20 marks)

STG LIMITED

(a)   The standard variable manufacturing overhead rate:

Budgeted variable manufacturing overheads/Normal capacity
= R54 000 / 12 000 units
= R4,50 per unit

**(b)   The variable manufacturing overheads rate variance
(in respect of overheads that vary with production)**

Actual variable   Standard variable
manufacturing overheads   manufacturing overheads

actual production

= R58 000 (given)   = R4,50 (a) x 11 500 units
                                                                     = R51 750

R6 250 (unfavourable)
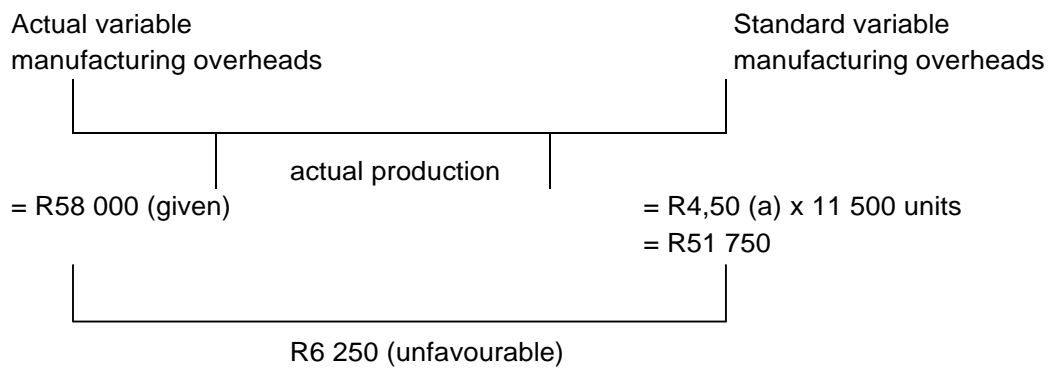
(c) **The variable manufacturing overheads efficiency variance**
(in respect of overheads that vary with production)

R0 (always)

OR

Actual units produced at standard variable manufacturing overheads rate	Units produced at standard variable manufacturing overheads rate
= 11 500 units (given) x R54 000/12 000 units	= 11 500 units x R4,50 per unit
= 11 500 units x R4,50 per unit	= R51 750
= R51 750	

R0 (always)

(d) **The total variable manufacturing overheads variance**
(in respect of overheads that vary with production)

Total variance   = Rate variance + Efficiency variance
                           = R6 250(unfavourable)(b) + R0(c)
                           = R6 250(unfavourable)

(e) **The total material variance**

Actual costs	Standard quantity allowed at standard price
	actual production
= R632 500 (given)	= 11 500 units x 5kg x R10/kg
	= R575 000

R57 500 (unfavourable)

(f)   The labour efficiency variance

Actual hours worked   Standard hours allowed
(35 640 hours)   for actual production
                                                      (11 500 units x 3 hours/unit)

At the standard labour rate
(R15 per hour) to
manufacture 11 500 units
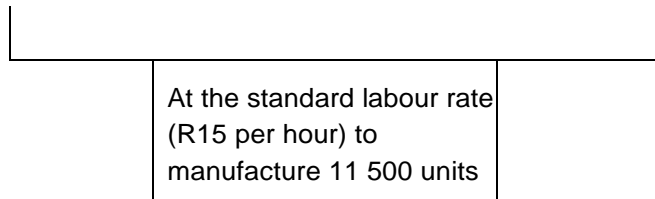
= 35 640 hours x R15 per hour
= R534 600   = 11 500 units x 3 hours/unit
                                                         x R15 per hour
                                                      = R517 500

R17 100 (unfavourable)

(g)   The labour rate variance

Actual labour rate paid   Standard labour rate per hour
(R516 925/35 640 hours = R14,50)   (R15 per hour)

For the actual number of
hours (35 640) worked to
manufacture 11 500 units
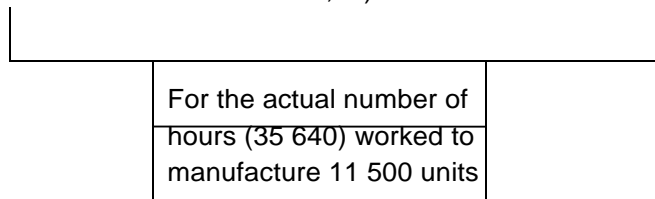
= 35 640 hours x R14,50 per hour   = 35 640 hours x R15 per hour
= R516 780   = R534 600

R17 820 (favourable)

(h)   The total labour variance

Total labour variance = Labour rate variance + Labour efficiency variance
                       = R17 820(favourable) + R17 100(unfavourable)
                       = R720(favourable)

(i) **The standard selling price if 11 500 units were actually sold at R132 per unit, with a selling price variance of R51 000 (unfavourable)**

Actual sales income
= 11 500 units x R132/unit
= R1 518 000

Actual quantity sold at standard selling price
Let standard selling price = SP
11 500 units x SP

R51 000 (unfavourable)

Thus:

R51 000	= R1 518 000 + (11 500 x SP)
11 500 x SP	= R1 518 000 + R51 000
11 500 x SP	= R1 569 000
SP	= R1 569 000/11 500
SP	= R136,43 per unit

(j) **The amount of direct labour costs to be recorded in the Production Account of the general ledger and whether the account has to be debited or credited with this amount.**

Debit the standard number of hours allowed x standard rate
Thus: 11 500 units x 3 hours/unit x R15 per hour = R517 500

QUESTION 3 (SOLUTION) (20 Marks)

(a)   Method of cost determination:

Absorption costing

(b)   Budgeted number of units manufactured for the year 2014:

Production cost = (units) (variable cost per unit)+ fixed costs
R721 000   = (x) (11)+ 325 000
        11x   = R721 000 – R325 000
          x   = 36 000

(c)   Budgeted units on hand at 31 August 2014:

Opening	8 000
Manufactured	36 000
Sales	(42 000)
Closing	2 000

(d) Budgeted income statement for 31 August 2014 for Pinky Limited

	R
Income (given)	1 050 000
Less: Variable production cost	(455 600)
Opening stock (8 000 x R10,20)	81 600
Variable production cost (36 000 x R11)	396 000
Less: Closing stock ((396 000/36 000) x 2 000)	(22 000)
	594 400
Less: Variable selling and admin cost (R1,40 x 42 000)	(58 800)
Marginal income	535 600
Less: Fixed cost	(483 000)
Production	325 000
Selling and admin cost	158 000
Net Profit before tax	52 600

(e) Reconcile the difference in net profit between the income statement given, and the income statement in (d).

	R
Net profit: Absorption costing	29 282
Net profit: Direct costing	52 600
	23 318
Reflected by	
Opening stock	39 600
Absorption	121 200
Direct	81 600
Closing stock	16 282
Absorption	38 282
Direct	22 000
	23 318

QUESTION 4(SOLUTION)

PART A (15 Marks)

NLCLIMITED

(a)   Calculation of the total costs to date:

	R
Material	8 188 000
Issued	9 400 000
Proceeds from sale of materials (cost price R320 000)	(352 000)
On hand at 28 February 2013	(860 000)
Machinery	1 500 000
Transferred to the site	4 600 000
Sold at selling price	(800 000)
Value of machinery on 28 February 2013	(2 300 000)
Direct Labour	3 300 000
Overheads	700 000
TOTAL COSTS TO DATE	13 688 000

(b)   Calculation of the total estimated profit on the contract:

	R
Original contract price	25 000 000
Extras	1 500 000
	26 500 000
Less: Total estimated costs to complete the contract	(23 000 000)
TOTAL ESTIMATED PROFIT	3 500 000

(c)   Calculation of the profit for the year using the ratio of costs to date to the total estimated costs

$$\frac{\text{Cost to date}}{\text{Estimated total costs}} \quad x \quad \frac{\text{Total estimated profit}}{1}$$

=   R13 688 000/R23 000 000 x R3 500 000

=   R2 082 957

PART B (15 Marks)

(a) Calculation of the marginal income per picture frame.

	R
Selling price per picture frame	50
Variable production cost	(35)
Direct material	15
Direct labour	12
Overheads	8
Marginal income per picture frame	15

(b) Calculation of the fixed cost for the year.

Break-even Quantity	20 000 units
Marginal income	R 15
Fixed cost	R300 000[1]

[1] 20 000 x R15

(c) Calculation of the break-even-value.

Break-even Quantity	20 000
Selling price per picture frame	R 50
Break-even-value	R1000 000[2]

[2] 20 000 x R50

(d) How many units would have to be sold, if the selling price remains the same.

Sales $\quad$ = Fixed cost + Variable cost+ Pre-tax profit

$50x \quad$ = R300 000 + 35x + (1 080 000/0,72)

$50x \quad$ = R300 000 + 35x + 1 500 000

$50x-35x$ = R1 800 000

$15x \quad$ = R1 800 000

$x \quad$ = 120 000 units

(e) If the units sold in (d) were achieved, how many units have to be manufactured.

Manufactured	117 000
Opening stock	(5 000)
Sales	120 000
Closing stock	2 000

(f) Calculate the margin of safety ratio if the expected sales in (d) is the same.

Expected sales		120 000
Break-even Quantity		20 000
		100 000
Expected sales		120 000
Ratio	100 000/120 000 =	83,33%

PART C (10 Marks)

(a)   Calculation of Activity rates:

Activity	Activity costs R	Cost driver volumes	Activity rates R
Assembly	750 000	10 set-ups	750 000 / 10 = R75 000 per set-up
Compressing	840 000	8 set-ups	840 000 / 8 = R105 000 per set-up
Inspection	12 000	5 inspections	12 000 / 5 = R2 400 per inspection

(b)   Calculate the overhead costs per unit manufactured for each of the products

Activity	Pink R	Blue R	Yellow R
Assembly	3 set-ups x R75 000 per setup = R225 000	5 set-ups x R75 000 per setup = R375 000	2 set-ups x R75 000 per setup = R150 000
Compressing	3 set-ups x R105 000 per setup = R315 000	4 set-ups x R105 000 per setup = R420 000	1 set-up x R105 000 per setup = R105 000
Inspection	2 inspections x R2 400 per inspection = R4 800	2 inspections x R2 400 per inspection = R4 800	1 inspection x R2 400 per inspection = R2 400
TOTAL	R544 800	R799 800	R257 400
Number of units manufactured	8 000	5 000	3 000
Overhead costs per unit	R68,10	R159,96	R85,80

QUESTION 5(SOLUTION) **(21 marks)**

ABEL LIMITED

(a) (i) Direct costing method

Income statement for the month ended 31 August 2013

			R
Sales	(800 units x R25,00)		20 000
Less: Variable production costs			5 090
Opening stock	[(1 000 - 900) x R5,40]		540
Variable production costs	(900 units x R6,50)		5 850
			6 390
Less: Closing stock	(200 x R6,50)		1 300
			14 910
Less: Variable selling and administration costs	(800 x R3,00)		2 400
Marginal income			12 510
Less: Fixed costs			9 094
- Production			5 994
- Selling and administration costs			3 100
Net income			3 416

(8)

(ii) Absorption costing method

Income statement for the month ended 31 August 2013

		R
Sales	(800 units x R25,00)	20 000
Less: Cost of sales		10 212
Opening stock	$[^{100}/_{1000}$ x R10 000]	1 000
Variable production costs	(900 units x R6,50)	5 850
Fixed production costs		5 994
		12 844
Less: Closing stock	$[^{200}/_{900}$ x R11 844]	2 632
Gross profit		9 788
Less: Selling and administration costs		5 500
Variable	(800 x R3,00)	2 400
Fixed		3 100
Net income		4 288

(10)

(b)   Reconciliation between the two income statements

	R
Net income : Direct costing method	3 416
Net income : Absorption costing method	4 288
Net income	872
Reflected by :	
Opening stock	460
- Direct costing method	540
- Absorption costing method	1 000
Closing stock	1 332
Net income : Direct costing method	1 300
Net income : Absorption costing method	2 632
Net income	872

(3)

BILLY LTD - BUDGETED INCOME STATEMENT FOR THE YEAR ENDING 30 JUNE 2014

(I)   Absorption costing method (Weighted average method)

		R
Sales (300 x R18 000)		5 400 000
Less: Manufacturing costs		2 649 850
Opening stock	â	348 000
Cost of current production (310 units)		2 743 500
Variable costs (310 x R7 500)		2 325 000
Fixed costs		418 500
		3 091 500
Less: Closing stock	ã	441 650
Gross profit		2 750 150
Less: Selling and administrative costs		400 000
Variable (300 x 900)		270 000
Fixed		130 000
Net profit		2 350 150

(8)

â   Calculation of the value of opening stock:

	R
Production cost for 2013:	
Variable (300 x R7 400)	2 220 000
Fixed	390 000
	2 610 000

ˆ $\dfrac{40}{300}$ x $\dfrac{R2\ 610\ 000}{1}$

    = R348 000   (3)

ã   Calculation of budgeted value of stock at 30 June 2014:

ˆ $\dfrac{50}{350}$ x $\dfrac{R3\ 091\ 500}{1}$

    = R441 643   (2)

(ii) **Direct costing method**

		R
Sales (300 x R18 000)		5 400 000
<u>Less</u>: Variable costs		2 516 570
Opening stock	ä	296 000
Variable production costs (310 x R7 500)		2 325 000
		2 621 000
<u>Less</u>: Closing stock	å	374 430
		2 246 570
Selling & administrative costs (300 x R900)		270 000
Marginal income		2 883 430
<u>Less</u>: Fixed costs		548 500
Production cost		418 500
Selling and administrative cost		130 000
Net income		2 334 930

(6)

ä   Calculation of value of stock at 30 June 2014:

Variable production costs
(R4 600 + R1 600 + R1 200) =   R7 400

Production 2013   300
Sales 2013   260

Opening stock 2013   40

Value of opening stock
= 40 units x R7 400
= R296 000   (3)

å   Calculation of value of stock at 30 June 2013:

Opening stock   40
Budgeted production for year   310

                                                                                     350
Less: Budgeted sales for the year   300

Opening stock   50
                                                                                     (2)

                                      x
 Units of closing stock   Total manufacturing cost
Units available for sale   1

 50   x R2 621 000
350   1

= R374 429

(b) (i) **Break-even value**

= Fixed costs
   Marginal income ratio

                                                 =

            R548 500   R548 500
= (Marginal income/sales x 100)   **OR**   Selling price - Variable cost x 100
                                                       Selling price

                                                 =

            R548 500   R548 500
= (R2 880 000 / R5 400 000 x 100)   R18 000 - R8 400 x 100
                                                      R18 000

= R548 500/53.33%

= R1 028 437,56

(Rounded to R1 028 438)   (2)

QUESTION 6 (continue)

(ii)   **Budgeted margin of safety ratio (%)**

= $\dfrac{\text{Sales - Break-even value}}{\text{Sales}}$ x $\dfrac{100}{1}$

= $\dfrac{\text{R5 400 000 - R1 028 438}}{\text{R5 400 000}}$ x $\dfrac{100}{1}$

= 80,9%

(2)

ALTERNATIVE

= $\dfrac{\text{Sales (units) - Break-even units}}{\text{Sales (units)}}$ x $\dfrac{100}{1}$

= $\dfrac{300 - 58}{300}$ x $\dfrac{100}{1}$

= 80,9%

(iii)   **Marginal income if additional 60 organs are sold:**

	R
Sales (60 x R18 000)	1 080 000
Less: Variable cost (60 x R8 400)	504 000
	576 000

(3)

(iv)   **Break-even quantity with variable cost increase (10%)**

= $\dfrac{\text{Fixed costs}}{\text{Marginal income per unit}}$

= $\dfrac{\text{R548 500}}{\text{R8 760}}$

= 62,6 units therefore 63 units

â   Marginal income per unit

	R
Selling price	18 000
Variable cost	9 240
Production	7 500
Selling & administrative	900
	8 400
10% increase	840
Marginal income per unit	8 760

(3½)

OR

Let n	=	Number of units	
Sales - Variable costs	=	Fixed costs	
R18 000n - R9 240n	=	R548 500	
R8 760n	=	R548 500	
n	=	$\dfrac{\text{R548 500}}{\text{R8 760}}$	
n	=	63 units	

(v)   **Selling price per unit to realise a R1 000 000 profit:**

Fixed cost + Profit = (Selling price x Units sold) - (Variable cost x Units sold)

R548 500 + R1 000 000	= (Selling price x 300) - (R9 240 n x 300)
R1 548 500	= (Selling price x 300) - R2 772 000
Selling price x 300	= R4 320 500
Selling price per unit	= R4 320 500 ÷ 300
ˆ Selling price	= R14 401,67 per unit (3½)

OR

Sales	= Fixed costs + Variable costs + Profit
	= R548 500 + (9 240 x 300) + R1 000 000
	= R548 500 + R2 772 000 + R1 000 000
	= R4 320 500
Selling price per unit	= R4 320 500 ÷ 300 units
	= R14 401,67 per unit

QUESTION 7 (SOLUTION) (19 marks)

TANTAN LTD

Note: Change profit in question to R77 490, advertising cost to R14 500 and sales commission 5% (not income tax rate).

(a)   Break-even value : $\dfrac{\text{Fixed costs}}{\text{Marginal income ratio}}$

$$= \frac{\text{R90 000 + R60 000 + R14 500}}{0,47}$$

$$= \frac{\text{R164 500}}{0,47}$$

$$= \text{R350 000}$$

Marginal income ratio:	R	%
Selling price per unit	500	100
Less: Variable costs		53
Marginal income	235	47

(4)

(b)   Let selling per unit   =   **ṫ**
Sales - commission   =   Variable cost excluding commission + Fixed cost
600 (R0,95 **ṫ**)   =   600 (R240) + R150 000
R570 **ṫ**   =   R144 000 + R150 000
R570 **ṫ**   =   R294 000
ṫ   =   R515,789 (SAY : R515,79)

(5)

OR

Sales after commission of 5% per unit for 600 units : R294 000

^ (Selling price - 5%) x 600   =   R294 000
95%   =   R294 000 ÷ 600
95%   =   R490
^ 100%   =   R515,789 (SAY : R515,79)

(5)

TEST

	R
Sales : 600 x R515,79	309 474
<u>Less</u>: 5% commission	15 474
	294 000
<u>Less</u>: Variable production costs 600 x R240	144 000
Marginal income	150 000
<u>Less</u>: Fixed costs	150 000
Net income	Nil
	(5)

(c)   Let units sold   = i

$$
\begin{array}{lll}
\text{Sales} & = & \text{Variable cost + Fixed costs + Profit before tax} \\
\text{R480 } i & = & \text{R264 } i + \text{R150 000} + \dfrac{\text{R77 490}}{70} \times \dfrac{100}{1} \\
\text{R480 } i & = & \text{R264 } i + \text{R150 000} + \text{R110 700} \\
\text{R216 } i & = & \text{R150 000} + \text{R110 700} \\
& = & \text{R260 700} \\
& = & \text{1 206,944 unit} \\
\hat{} & & \text{1 207 units}
\end{array}
$$

(5)

OR

$$\text{Profit before tax} \quad = \quad \text{M.I.R. x Total sales - Fixed costs}$$

$$
\begin{array}{lll}
\dfrac{\text{R77 490}}{70} \times \dfrac{100}{1} & = & 0,45^{\hat{a}} \times (i \times \text{R480}) - \text{R150 000} \\
\text{R110 700} & = & 0,45 \times (i \times \text{R480}) - \text{R150 000} \\
\text{R260 700} & = & 0,45 \times \text{R480 } i \\
\dfrac{\text{R260 700}}{0,45} & = & \text{R480 } i \\
\text{R579 333} & = & \text{R480 } i \\
i & = & \text{1 206,94} \\
& = & \text{1 207 units}
\end{array}
$$

(5)

â   Calculation

Sales before commission		480 ∎
<u>Less</u>: Variable costs (including commission)		264 ∎
Marginal income		260 700
<u>Less</u>: Fixed costs x		150 000
Profit before tax $\frac{R77\ 490}{70}\ \frac{100}{1}$		110 700

$$^ \quad 480\ ∎ - 264\ ∎ = R260\ 700$$
$$216\ ∎ = R260\ 700$$
$$∎ = 1\ 206{,}94 \text{ units}$$
$$= 1\ 207 \text{ units} \tag{5}$$

OR

$$\text{Sales} = \frac{\text{Fixed cost} + \text{Profit before tax}}{\text{Marginal income ratio}}$$

$$∎ \times R480 = \frac{R150\ 000 + R110\ 700 \left(\frac{R77\ 490}{70}\ \frac{100}{1} \right) \quad x \frac{}{}}{0{,}45}$$

$$∎ \times R480 = \frac{R150\ 000 + R110\ 700}{0{,}45}$$

$$∎ \times R480 = R579\ 333$$

$$∎ = \frac{R579\ 333}{R480}$$

$$= 1\ 206{,}94 \text{ units}$$

$$= 1\ 207 \text{ units} \tag{5}$$

Marginal income ratio:	R	%
Selling price per unit	~~480~~264	100
<u>Less</u>: Variable costs		55
Material, labour, overheads	~~240~~	
Commission: R480 x 5%	24	
Marginal income	216	45

(d) Break-even quantity   =   Fixed costs
                                  Marginal income per unit

600   =   R150 000
                                 R500 - **i**

R300 000 - R600 **i**   =   R150 000
            R600 **i**   =   R150 000
                            =   R250

OR

Let variable costs per unit =   **i**
Net profit   =   Sales - Variable costs - Fixed costs
        0   =   (600 x R500) - (600 **i**) - R150 000
R600 **i**   =   R300 000 - R150 000
R600 **i**   =   R150 000
        i   =   R250   (5)

QUESTION 8 (25 marks)

W MASS LIMITED

(a) Budgeted income statement for the year ending 30 April 2014

	At 75% capacity 12 000 units	At 80% capacity 12 800 units ^{O}
	R	R
Sales	3 000 000	2 880 000 ^{Ó}
Less: Manufacturing costs	1 935 600	2 024 640
Material	831 600 ^{Î}	887 040 ^{Ô}
Direct labour	252 000 ^{Ï}	268 800 ^{Õ}
Variable overheads	252 000 ^{Đ}	268 800 ^{Ö}
Fixed overheads	600 000	600 000
	1 064 400	855 360
Less: Selling and administrative expenses	578 000	562 880
Fixed	200 000	200 000
Sales commission	378 000 ^{Ñ}	362 880 $^×$
Budgeted net profit	486 400	292 480

The company should maintain the capacity at 75% at present selling price. (16)

Calculations:

Î Material: R792 000 + 5% = R831 600

Ï Direct labour: R240 000 + 5% = R252 000

Đ Variable overheads: R240 000 + 5% = R252 000

Ñ Sales commission: R360 000 + 5% = R378 000
                            or (12,6% x R3 000 000)

Ò R3 000 000 ÷ R250 = 12 000 units are manufactured at 75% capacity.

Number of units manufactured at 80% capacity:

$$\frac{12\ 000\ units}{1}\ \times\ \frac{80}{75}$$

= 12 800 units

Ó Sales: R3 000 000 ÷ 12 000 units = R250 per unit
                   = (R250 - 10%) x 12 800 units
                   = R225 x 12 800 units
                   = R2 880 000

Ô Material: R792 000 ÷ 12 000 units = R66 per unit
                   = (R66 + 5%) x 12 800 units
                   = R69,30 x 12 800 units
                   = R887 040

Õ Direct labour: R240 000 ÷ 12 000 units = R20 per unit
                   = (R20 + 5%) x 12 800 units
                   = R21 x 12 800 units
                   = R268 800

Ö Variable
   overheads: R240 000 ÷ 12 000 units = R20 per unit
                   = (R20 + 5%) x 12 800 units
                   = R21 x 12 800 units
                   = R268 800

× Sales commission
                   12% plus 5% increase
                   = 12,6% of selling price
                   = 12,6% x R2 880 000
                   = R362 880

QUESTION 8 (continued)

(b) <u>Calculation of net profit or loss from the special order</u>

12 000 units are manufactured at 75% capacity

Number of units manufactured at 100% capacity:

$$\frac{12\,000}{1} \times \frac{100}{75}$$

= 16 000 units

Number of units @ 100% capacity:	16 000 units per year
Number of units @ 80% capacity:	<u>12 800</u> units per year
Available capacity:	<u>3 200</u> units

50% of capacity available: 1 600 units for the special order

		R	R
Sales	(1 600 units x R140)		224 000
<u>Less</u>: Additional manufacturing costs			232 800
Material	(R69,30 x 1 600)	110 880	
Direct labour	(R21 x 1 600)	33 600	
Variable overheads	(R21 x 1 600)	33 600	
Sales commission	(3% x R224 000)	6 720	
Salary of assistant	(R4 000 x 12)	<u>48 000</u>	
Net loss from special order			<u>(8 800)</u>

<u>Recommendation</u>: The special order should not be accepted.

(9)

QUESTION 9 (24 marks)

<u>NAISON LIMITED</u>

(a) Calculation of the actual material purchase price per kilogram plastic

Actual quantity at   Actual quantity at
actual price   standard price

= 28 000 kg x R▮▮â   = 28 000kg x R6 000
                                             = R168 000

Variance = R7 000 (u)(given)

QUESTION 9 (continue)

â   The actual price per kilogram is not known, and R **i** is therefore used to represent the unknown factor.

The variance is unfavourable, which means that the actual cost is more than the standard cost.

The following equation for calculating **i** can now be derived from the above information:

28 000kg x R **i** - R168 000   = R7 000

28 000kg x R **i**   = R7 000 + R168 000

$$\mathbf{i} = \frac{R175\ 000}{28000kg}$$

i = R6,25 per kilogram

(4)

(b) Calculation of the material quantity variance

Actual quantity at   Standard quantity
standard price   at standard price

= 28 000 kg x R6,00   = 30 000kgâ x R6,00
= R168 000   = R180 000

Variance = R12 000 (fav)

â   Standard quantity

= R15 ÷ R6 = 2,5kg
2,5kg x 12 000 units = 30 000kg   (2½)

(c) Calculation of the actual labour rate per hour

Actual hours at   Actual hours at
actual rate   standard rate

= 20 000 hours x R **i** ᵃ   = 20 000 hours x R12,50â
                                                     = R250 000

Variance = R5 000 (f)(given)

â   R18,75 ÷1,5 hours   =   R12, 50

ã   The actual rate per hour is not known and R **i** is therefore used to represent the unknown factor.

The variance is favourable which means that the actual costs are less than the standard cost.

The following equation for calculating **i** can now be derived from the above information

20 000 hours x R i - R250 000 = -R5 000

20 000 hours x R i = -R5 000 + R250 000

$$i = \frac{R245\ 000}{20\ 000\ hours}$$

i = R12,25 per hour

(4)

(d) Calculation of the labour efficiency variance

Actual hours worked at standard labour rate	Actual hours allowed for actual production at standard labour rate

= 20 000 hours at R12,50
= R250 000

12 000 units x 1,5 hours
= 18 000 hours x R12,50
= R225 000

Variance = R25 000 (u)

(2½)

(e) Calculation of the variable overhead efficiency variance in respect of overheads varying with hours worked.

Actual hours at standard rate	Standard hours at standard rate

= 20 000 hours x R9,00
= R180 000

= 18 000 hours x R9,00
= R162 000

Variance = R18 000 (u)

(2½)

(f) Calculation of the variable overhead efficiency variance in respect of overheads varying with production

Nil   (1)

(g) Calculation of the variable overheads spending variance in respect of overheads varying with hours worked.

Actual hours at   Actual hours at
actual rate   standard rate

= R167 000 (given)   = 20 000 hours x R9,00
                                                        = R180 000

                   Variance = R13 000 (f)

(2½)

(h) Calculation of the variable overhead spending variance in respect of overheads varying with production.

Actual quantity at   Actual quantity at
actual rate   standard rate

= R80 000 (given)   = 12 000 units x R7,25
                                                        = R87 000

                   Variance = R7 000 (f)

(2½)

(i) Calculation of the selling price variance.

Actual quantity   Actual quantity at
at actual price   standard rate

= R603 000   = 12 000 units x R50,00
                                                        = R600 000

                   Variance = R3 000 (f)

(2½)

QUESTION 10 (28 marks)

BELINA LIMITED

(a) (i) Calculation of the actual material purchase price variance.

Actual quantity at   Actual quantity at standard
actual price   price

 = R292 500 (given)   = 78 000^{â} metres x R3,50
                = R273 000

      Variance = R19 500 (u)

â R292 500 ÷ R3,75 = 78 000 metres   (2½)

(ii) Calculation of the material quantity variance

Actual quantity at standard price   Standard quantity at
                standard price

 = 78 000 metres x R3,50   = 80 000^{â} metres x
 = R273 000   R3,50
                = R280 000

      Variance = R7 000 (f)

â 20 000 units at 4 metres per unit = 80 000 metres   (2½)

(iii) Calculation of the labour rate variance

Actual hours at actual rate   Actual hours at
                standard rate

 = R253 500   = 32 500^{â} hours x R8,00
                = R260 000

      Variance = R6 500 (f)

â Actual hours = R253 500 ÷ R7,80 per hour = 32 500 hours

                   (2½)

(iv) Calculation of the labour efficiency variance

Actual hours at standard rate   Standard hours at
standard rate

    32 500 x R8,00   = 30 000^{â} hours x R8,00
    = R260 000   = R240 000

            Variance = R20 000 (u)

â 20 000 units x 1,5 hours = 30 000 hours   (2½)

(v)   Calculation of the variable overhead spending variance in respect of overheads varying with
       hours worked

Actual hours at actual rate   Actual hours at
standard rate

    = R68 250 (given)   = 32 500^{â} hours x R2,00
                                      = R65 000

            Variance = R3 250 (u)

                                                                (2½)

(vi) Calculation of the variable overhead efficiency variance in respect of overheads varying with hours
      worked

Actual hours at standard rate   Actual hours at
standard rate

    = 32 500 hours x R2   = 30 000^{â} hours x R2,00
    = R65 000   = R60 000

            Variance = R5 000 (u)

â 20 000 units x 1,5 hours per unit = 30 000 hours   (2½)

(vii) Calculation of the variable selling and administrative overhead spending variance

Actual quantity at actual rate   Actual quantity at
standard rate

    = R118 000 (given)   = 20 000 units x R7,50
                                      = R150 000

            Variance = R32 000 (f)

                                                                (2½)

(vii) Calculation of the selling price variable

| Actual quantity at actual price | Actual quantity at standard price |

= R1 240 000 (given)

= 20 000 units x R60,00
= R1 200 000

Variance = R40 000 (f)

(1½)

(b) Calculation of the actual labour hours worked

| Actual hours worked | Standard hours allowed for actual production |

At standard labour rate of R8 per hour to manufacture 20 000 units

= **i** â x R8,00 per hour

= 20 000 units x 1,5 hours x R8,00
= R240 000

â The actual hours worked is not known and **i** is therefore used to represent the unknown factor.

The variance is favourable which means that the actual costs are less than the standard costs.

The following equation for calculating R**i** can now be derived from the above information:

(**i** x R8,00) - R240 000 = R8 000

$$\mathbf{i} = \frac{R240\ 000 - R8\ 000}{R8,00\ \text{per hour}}$$

= 29 000 hours   (4½)

(c) Calculation of the actual material purchase price per metre

| Actual quantity at actual price | Actual quantity at standard price |

= R257 400 (given)

(R292 500 ÷ R3,75 = 78 000m)
= 78 000 m x R3,50
= R273 000

Variance = R15 600 (f) (given)

â The actual price per kilogram is not known and R**i** is therefore used to represent the unknown factor.

The variance is favourable which means that the actual costs are less than the standard costs.

The following equation for calculating **i** can now be derived from the above information:

The following equation for calculating x can now be derived from the above information:

$$(78\ 000\ m \times Rx) - R273\ 000\quad =\quad -R15\ 600$$

$$78\ 000\ m \times Rx\quad =\quad -R15\ 600 + R273\ 000$$

$$x\quad =\quad \frac{R257\ 400}{78\ 000\ \text{metres}}$$

$$x\quad =\quad R3{,}30\qquad\qquad\qquad (4\tfrac{1}{2})$$

QUESTION 11 (SOLUTION)

Material Inventory Control

Opening balance	^150 000	WIP⁷	^146 000
Creditors	^164 000	Factory overhead control	^16 000
		Balance b/d	152 000
	314 000		314 000
Balance b/f	152 000		

WIP Control

Opening balance	¹192 000	Finished goods	²377 000
Materials control	^146 000	Balance b/d	502 500
Factory Salaries & Wages control	³361 000		
Factory overhead control	⁴180 500		
	879 500		879 500
Balance b/f	502 500		

Finished Goods Control

Opening balance	⁵123 000	COS	⁶248 000
WIP	^377 000	Balance b/d	252 000
	500 000		500 000
Balance b/f	252 000		

Factory Salaries and Wages Control

Salaries payable	459 000	WIP	^361 000
		Factory overhead control	^98 000
	459 000		459 000

¹64 000 + 72 000 + 56 000 ^

²N:248 000 (72 000 + 26 000 + 100 000 + (100 000 x 50%))
+ R: 129 000 (60 000 + 46 000 + (46 000 x 50%)) ^

³44 000 + 100 000 + 75 000 + 96 000 + 46 000 ^

⁴361 000 x 50%

⁵117 000 + 6 000

⁶72 000 + 26 000 + 100 000 + 50 000

⁷26 000 + 12 000 + 48 000 + 60 000

QUESTION 11 (continued)

Factory Overhead Control

Materials control	^16 000	WIP (361 000 x 50%)	180 500	Fin. Goods
Factory salaries & wages control	^98 000			
Creditors[9]	66 000			
COS[8]	500			
	180 500		180 500	

[8] Over-applied overheads

[9] 30 000 + 36 000

Cost of Sales (COS)

	^248 000	Trading account	247 500
		Factory overhead control	^ 500
	248 000		248 000

Sales

Trading account	310 000	Debtors	[10]310 000
	310 000		310 000

[10] 248 000 x 125%

Trading Account

Cost of sales	^ 247 500	Sales	^ 310 000
Profit and loss (I/s)	^ 62 500		
	310 000		310 000

QUESTION 12 – SOLUTION

PART A

(a) Quantity statement

Physical units			Equivalent units				
Input		**Output**	**Raw materials**		**Conversion cost**		
(units)	**Details**	**(units)**	**Units**	**%**	**Units**	**%**	
	Input						
80 000	Opening WIP						
140 000	Put into production						
	Output						
	Completed and transferred	180 000√	180 000^	100	180 000^	100	
	Normal loss	① 7 000√	7 000^	100	1 400^	20	
	Abnormal loss	② 13 000^	13 000^	100	2 600^	20	
	Closing WIP	20 000^	20 000^	100	18 000^	90	
220 000		220 000	220 000		202 000		

① 220 000 – 80 000 = 140 000
  140 000 x 5% = 7 000
② Balancing figure

(b) Production cost statement

	Total	Material	Conversion cost
	R	**R**	**R**
Opening WIP	448 000	320 000	128 000
Current production cost	2 251 000	588 000	1 663 000
Total	2 699 000	908 000	1 791 000
Equivalent units - per quantity statement		220 000	202 000
Equivalent cost per unit	R13,00=	R4,13 +	R8,87

√√√ (Based on principle; either 3 marks or zero)

(c) Calculation and allocation of the Rand value of the normal loss

NLR   = NLM + NLC

= (7 000^ x R4,13^) + (1 400^ x R8,87^)

= R28 910 + R12 418

= R41 328

MATERIAL

	Units	Calculation	R
Completed and transferred	180 000^	180 000 / 213 000 x R28 910	24 431
Abnormal loss	13 000^	13 000 / 213 000 x R28 910	1 764
Closing WIP	20 000^	20 000 / 213 000 x R28 910	2 715
TOTAL	213 000	√For dividing by total and multiplying by 28 910	**28 910**

CONVERSION COST

	Units	Calculation	R
Completed and transferred	180 000^	180 000 / 200 600 x R12 418	11 143
Abnormal loss	2 600^	2 600 / 200 600 x R12 418	161
Closing WIP	18 000^	18 000 / 200 600 x R12 418	1 114
TOTAL	200 600	√For dividing by total and multiplying by 12 418	**12 418**

(d) Cost allocation statement

	R
Completed and transferred	2 375 574
Material and conversion (13,00^ x 180 000^)	2 340 000
Normal loss (24 431^ + 11 143^)	35 574
Abnormal loss	78 677
Material (4,13^ x 13 000^)	53 690
Conversion cost (8,87^ x 2 600^)	23 062
Normal loss (1 764^ + 161^)	1 925
Closing WIP	246 089
Material (4,13^ x 20 000^)	82 600
Conversion cost (8,87^ x 18 000^)	159 660
Normal loss (2 715^ + 1 114^)	3 829
Total cost allocated	2 700 340
Rounding difference	(1 340)
Total cost per production cost statement	2 699 000

PART B

(a) Quantity statement

Physical units			Equivalent units				
Input		**Output**	**Raw materials**		**Conversion cost**		
(units)	**Details**	**(units)**	**Units**	**%**	**Units**	**%**	
	Input						
80 000	Opening WIP						
140 000	Put into production						
	Output						
	Completed and transferred	180 000√	180 000^	100	180 000^	100	
	Normal loss	① 11 000√	11 000^	100	6 600^	60	
	Abnormal loss	② 9 000^	9 000^	100	5 400^	60	
	Closing WIP	20 000^	20 000^	100	18 000^	90	
220 000		220 000	220 000		210 000		

① 220 000 x 5% = 11 000
② Balancing figure

(b) Production cost statement

	Total	Material	Conversion cost
	R	**R**	**R**
Opening WIP	448 000	320 000	128 000
Current production cost	2 251 000	588 000	1 663 000
Total	2 699 000	908 000	1 791 000
Equivalent units - per quantity statement		220 000	210 000
Equivalent cost per unit	R12,66=	R4,13 +	R8,53

√√√ (Based on principle; either 3 marks or zero)

(c) Calculation and allocation of the Rand value of the normal loss

NLR = NLM + NLC

= (11 000^ x R4,13^) + (6 600^ x R8,53^)

= R45 430 + R56 298

= R101 728

MATERIAL

	Units	Calculation	R
Completed and transferred	180 000^	180 000 / 209 000 x R45 430	39 126
Abnormal loss	9 000^	9 000 / 209 000 x R45 430	1 956
Closing WIP	20 000^	20 000 / 209 000 x R45 430	4 347
TOTAL	209 000	**Rounding difference = R1** √For dividing by total and multiplying by 45 430	**45 429**

CONVERSION COST

	Units	Calculation	R
Completed and transferred	180 000^	180 000 / 203 400 x R56 298	49 821
Abnormal loss	5 400^	5 400 / 203 400 x R56 298	1 495
Closing WIP	18 000^	18 000 / 203 400 x R56 298	4 982
TOTAL	203 400	√For dividing by total and multiplying by 56 298	**56 298**

(d) Cost allocation statement

	R
Completed and transferred	2 367 747
Material and conversion (12,66^ x 180 000^)	2 278 800
Normal loss (39 126^ + 49 821^)	88 947
Abnormal loss	86 683
Material (4,13^ x 9 000^)	37 170
Conversion cost (8,53^ x 5 400^)	46 062
Normal loss (1 956^ + 1 495^)	3 451
Closing WIP	245 469
Material (4,13^ x 20 000^)	82 600
Conversion cost (8,53^ x 18 000^)	153 540
Normal loss (4 347^ + 4 982^)	9 329
Total cost allocated	2 699 899
Rounding difference	(899)
Total cost per production cost statement	2 699 000

PART C

(a) Quantity statement

Physical units			Equivalent units				
				Raw materials		Conversion cost	
Input		Output					
(units)	Details	(units)	Units	%	Units	%	
	Input						
80 000	Opening WIP						
140 000	Put into production						
	Output						
	Completed and transferred	180 000√	180 000^	100	180 000^	100	
	Normal loss	① 6 000√	6 000^	100	900^	15	
	Abnormal loss	② 14 000^	14 000^	100	2 100^	15	
	Closing WIP	20 000^	20 000^	100	2 000^	10	
220 000		220 000	220 000		185 000		

①	220 000 – 80 000 – 20 000	=	120 000	
	120 000 x 5%	=	6 000	
②	Balancing figure			

(b)   Production cost statement

	Total	Material	Conversion cost
	R	R	R
Opening WIP	448 000	320 000	128 000
Current production cost	2 251 000	588 000	1 663 000
Total	2 699 000	908 000	1 791 000
Equivalent units - per quantity statement		220 000	185 000
Equivalent cost per unit	R13,81=	R4,13 +	R9,68

√√√ (Based on principle; either 3 marks or zero)

(c)   Calculation and allocation of the Rand value of the normal loss

NLR   = NLM + NLC

= (6 000^ x R4,13^) + (900^ x R9,68^)

= R24 780 + R8 712

= R33 492

MATERIAL

	Units	Calculation	R
Completed and transferred	180 000^	180 000 / 194 000 x R24 780	22 992
Abnormal loss	14 000^	14 000 / 194 000 x R24 780	1 788
Closing WIP	-^	-	0
TOTAL	194 000	√For dividing by total and multiplying by 24 780	**24 780**

CONVERSION COST

	Units	Calculation	R
Completed and transferred	180 000^	180 000 / 182 100 x R8 712	8 612
Abnormal loss	2 100^	2 100 / 182 100 x R8 712	100
Closing WIP	-^	-	0
TOTAL	182 100	√For dividing by total and multiplying by 8 712	**8 712**

(d) Cost allocation statement

	R
Completed and transferred	2 517 404
Material and conversion (13,81^ x 180 000^)	2 485 800
Normal loss (22 992^ + 8 612^)	31 604
Abnormal loss	80 036
Material (4,13^ x 14 000^)	57 820
Conversion cost (9,68^ x 2 100^)	20 328
Normal loss (1 788^ + 100^)	1 888
Closing WIP	101 960
Material (4,13^ x 20 000^)	82 600
Conversion cost (9,68^ x 2 000^)	19 360
Normal loss (0^ + 0^)	0
Total cost allocated	2 699 400
Rounding difference	(400)
Total cost per production cost statement	2 699 000

PART D

(a) Quantity statement

Input		Output	Raw materials		Conversion cost	
Physical units		**Equivalent units**				
(units)	**Details**	**(units)**	**Units**	**%**	**Units**	**%**
	Input					
80 000	Opening WIP					
140 000	Put into production					
	Output					
	Completed and transferred	180 000√	180 000^	100	180 000^	100
	Normal loss	① 10 000√	10 000^	100	10 000^	100
	Abnormal loss	② 10 000^	10 000^	100	10 000^	100
	Closing WIP	20 000^	20 000^	100	18 000^	90
220 000		220 000	220 000		218 000	

①	220 000 – 20 000	=	200 000
	200 000 x 5%	=	10 000
②	Balancing figure		

(b) Production cost statement

	Total	Material	Conversion cost
	R	**R**	**R**
Opening WIP	448 000	320 000	128 000
Current production cost	2 251 000	588 000	1 663 000
Total	2 699 000	908 000	1 791 000
Equivalent units - per quantity statement		220 000	218 000
Equivalent cost per unit	R12,35=	R4,13 +	R8,22

√√√ (Based on principle; either 3 marks or zero)

(c) Calculation and allocation of the Rand value of the normal loss

NLR = **NLM + NLC**

= (10 000^ x R4,13^) + (10 000^ x R8,22^)

= R41 300 + R82 200

= R123 500

MATERIAL

	Units	Calculation	R
Completed and transferred	180 000^	180 000 / 190 000 x R41 300	39 126
Abnormal loss	10 000^	10 000 / 190 000 x R41 300	2 174
Closing WIP	-^	-	0
TOTAL	190 000	√For dividing by total and multiplying by 41 300	**41 300**

CONVERSION COST

	Units	Calculation	R
Completed and transferred	180 000^	180 000 / 190 000 x R82 200	77 874
Abnormal loss	10 000^	10 000 / 190 000 x R82 200	4 326
Closing WIP	-^	-	0
TOTAL	190 000	√For dividing by total and multiplying by 82 200	**82 200**

(d) Cost allocation statement

	R
Completed and transferred	2 340 000
Material and conversion (12,35^ x 180 000^)	2 223 000
Normal loss (39 126^ + 77 874^)	117 000
Abnormal loss	130 000
Material (4,13^ x 10 000^)	41 300
Conversion cost (8,22^ x 10 000^)	82 200
Normal loss (2 174^ + 4 326^)	6 500
Closing WIP	230 560
Material (4,13^ x 20 000^)	82 600
Conversion cost (8,22^ x 18 000^)	147 960
Normal loss (0^ + 0^)	0
Total cost allocated	2 700 560
Rounding difference	(1 560)
Total cost per production cost statement	2 699 000

PART E

(a) Quantity statement

Physical units		Equivalent units				
Input		**Output**	**Raw materials**		**Conversion cost**	
(units)	**Details**	**(units)**	**Units**	**%**	**Units**	**%**
	Input					
80 000	Opening WIP					
140 000	Put into production					
	Output					
	Completed from:					
	- Opening WIP	⁽³⁾ 80 000√	-^	0	64 000^	80
M and cc^	- Current production	100 000^	100 000	100	100 000	100
	Completed and transferred	180 000	100 000		164 000	
	Normal loss	⁽¹⁾ 7 000√	7 000^	100	1 400^	20
	Abnormal loss	⁽²⁾ 13 000^	13 000^	100	2 600^	20
	Closing WIP	20 000^	20 000^	100	18 000^	90
220 000		220 000	140 000		186 000	

①   220 000 – 80 000 = 140 000
     140 000 x 5% = 7 000

②   Balancing figure

③   20% >= 20%, therefore do not reduce the units in opening WIP

(b) Production cost statement

	Total R	Material R	Conversion cost R
Opening WIP	448 000		
Current production cost	2 251 000	588 000	1 663 000
Total	2 699 000		
Equivalent units - per quantity statement		140 000	186 000
Equivalent cost per unit	R13,14=	R4,20 +	R8,94

√√√ (Based on principle; either 3 marks or zero)

(c) Calculation and allocation of the Rand value of the normal loss

NLR   = NLM + NLC

          = (7 000^ x R4,20^) + (1 400^ x R8,94^)

          = R29 400 + R12 516

          = R41 916

MATERIAL

	Units	Calculation	R
Completed and transferred (100 000 – 0)	100 000√	100 000 / 133 000 x R29 400	22 105
Abnormal loss	13 000^	13 000 / 133 000 x R29 400	2 874
Closing WIP	20 000^	20 000 / 133 000 x R29 400	4 421
TOTAL	133 000	^For dividing by total and multiplying by 29 400	**29 400**

CONVERSION COST

	Units	Calculation	R
Completed and transferred (164 000 – 64 000)	100 000√	100 000 / 120 600 x R12 516	10 378
Abnormal loss	2 600^	2 600 / 120 600 x R12 516	270
Closing WIP	18 000^	18 000 / 120 600 x R12 516	1 868
TOTAL	120 600	^For dividing by total and multiplying by 12 516	**12 516**

(d) Cost allocation statement

	R
Opening WIP	448 000
Material	320 000^
Conversion cost	128 000^
Current period equivalent production activities	1 918 643
Material (4,20^ x 100 000^)	420 000
Conversion cost (8,94^ x 164 000^)	1 466 160
Normal loss (22 105 + 10 378) ^	32 483
Completed and transferred	2 366 643
Abnormal loss	80 988
Material (4,20^ x 13 000^)	54 600
Conversion cost (8,94^ x 2 600^)	23 244
Normal loss (2 874 + 270) ^	3 144
Closing WIP	251 209
Material (4,20 x 20 000)^	84 000
Conversion cost (8,94^ x 18 000^)	160 920
Normal loss (4 421 + 1 868) ^	6 289
Total cost allocated	2 698 840
Rounding difference	160
Total cost per production cost statement	2 699 000

PART F

(a) Quantity statement

Physical units			Equivalent units				
Input		**Output**	**Raw materials**		**Conversion cost**		
(units)	**Details**	**(units)**	**Units**	**%**	**Units**	**%**	
	Input						
80 000	Opening WIP						
140 000	Put into production						
	Output						
	Completed from:						
	- Opening WIP	③ 76 000√	-^	0	60 800^	80	
M and cc^	- Current production	104 000^	104 000	100	104 000	100	
	Completed and transferred	180 000	104 000		164 800		
	Normal loss	① 11 000√	11 000^	100	6 600^	60	
	Abnormal loss	② 9 000^	9 000^	100	5 400^	60	
	Closing WIP	20 000^	20 000^	100	18 000^	90	
220 000		220 000	144 000		194 800		

① 220 000 x 5%   =   11 000
② Balancing figure
③ 20% < 60%, therefore reduce the units completed from opening WIP: 80 000 x (100% - 5%) = 80 000 x 95% = 76 000

(b) Production cost statement

	Total	Material	Conversion cost	
	R	R	R	
Opening WIP	448 000			
Current production cost	2 251 000	588 000	1 663 000	
Total	2 699 000			
Equivalent units - per quantity statement		144 000	194 800	
Equivalent cost per unit	R12,62=	R4,08	+	R8,54

√√√ (Based on principle; either 3 marks or zero)

(c)   Calculation and allocation of the Rand value of the normal loss

NLR   = NLM + NLC

= (11 000^ x R4,08^) + (6 600^ x R8,54^)

= R44 880 + R56 364

= R101 244

MATERIAL

	Units	Calculation	R
Completed and transferred	104 000√	104 000 / 133 000 x R44 880	35 094
Abnormal loss	9 000^	9 000 / 133 000 x R44 880	3 037
Closing WIP	20 000^	20 000 / 133 000 x R44 880	6 749
TOTAL	133 000	^For dividing by total and multiplying by 44 880	**44 880**

CONVERSION COST

	Units	Calculation	R
Completed and transferred	164 800√	164 800 / 188 200 x R56 364	49 356
Abnormal loss	5 400^	5 400 / 188 200 x R56 364	1 617
Closing WIP	18 000^	18 000 / 188 200 x R56 364	5 391
TOTAL	188 200	^For dividing by total and multiplying by 56 364	**56 364**

(d) Cost allocation statement

	R
Opening WIP	448 000
Material	320 000^
Conversion cost	128 000^
Current period equivalent production activities	1 916 162
Material (4,08^ x 104 000^)	424 320
Conversion cost (8,54^ x 164 800^)	1 407 392
Normal loss (35 094 + 49 356) ^	84 450
Completed and transferred	2 364 162
Abnormal loss	87 490
Material (4,08^ x 9 000^)	36 720
Conversion cost (8,54^ x 5 400^)	46 116
Normal loss (3 037 + 1 617) ^	4 654
Closing WIP	247 460
Material (4,08 x 20 000) ^	81 600
Conversion cost (8,54^ x 18 000^)	153 720
Normal loss (6 749 + 5 391) ^	12 140
Total cost allocated	2 699 112
Rounding difference	(112)
Total cost per production cost statement	2 699 000

PART G

(a) Quantity statement

Physical units			Equivalent units				
Input		**Output**	**Raw materials**		**Conversion cost**		
(units)	**Details**	**(units)**	**Units**	**%**	**Units**	**%**	
	Input						
80 000	Opening WIP						
140 000	Put into production						
	Output						
	Completed from:						
	- Opening WIP	(3) 80 000√	-^	0	64 000^	80	
M and cc^	- Current production	100 000^	100 000	100	100 000	100	
	Completed and transferred	180 000	100 000		164 000		
	Normal loss	(1) 6 000√	6 000^	100	900^	15	
	Abnormal loss	(2) 14 000^	14 000^	100	2 100^	15	
	Closing WIP	20 000^	20 000^	100	2 000^	10	
220 000		220 000	140 000		169 000		

①
220 000 – 80 000 – 20 000 = 120 000
120 000 x 5% = 6 000
② Balancing figure
③ 20% >= 15%, therefore DO NOT reduce the units in opening WIP

(b) Production cost statement

	Total	Material	Conversion cost
	R	R	R
Opening WIP	448 000		
Current production cost	2 251 000	588 000	1 663 000
Total	2 699 000		
Equivalent units - per quantity statement		140 000	169 000
Equivalent cost per unit	R14,04=	R4,20 +	R9,84

√√√ (Based on principle; either 3 marks or zero)

(c) Calculation and allocation of the Rand value of the normal loss

NLR = NLM + NLC

= (6 000^ x R4,20^) + (900^ x R9,84^)

= R25 200 + R8 856

= R34 056

MATERIAL

	Units	Calculation	R
Completed and transferred (100 000 – 0)	100 000√	100 000 / 114 000 x R25 200	22 105
Abnormal loss	14 000^	14 000 / 114 000 x R25 200	3 095
Closing WIP	0^	-	0
TOTAL	114 000	^For dividing by total and multiplying by 25 200	**25 200**

CONVERSION COST

	Units	Calculation	R
Completed and transferred (164 000 – 64 000)	100 000√	100 000 / 102 100 x 8 856	8 674
Abnormal loss	2 100^	2 100 / 102 100 x R8 856	182
Closing WIP	0^	-	0
TOTAL	102 100	^For dividing by total and multiplying by 8 856	**8 856**

(d) Cost allocation statement

	R
Opening WIP	448 000
Material	320 000^
Conversion cost	128 000^
Current period equivalent production activities	2 064 539
Material (4,20^ x 100 000^)	420 000
Conversion cost (9,84^ x 164 000^)	1 613 760
Normal loss (22 105 + 8 674) ^	30 779
Completed and transferred	2 512 539
Abnormal loss	82 741
Material (4,20^ x 14 000^)	58 800
Conversion cost (9,84^ x 2 100^)	20 664
Normal loss (3 095 + 182) ^	3 277
Closing WIP	103 680
Material (4,20 x 20 000) ^	84 000
Conversion cost (9,84^ x 2 000^)	19 680
Normal loss (0 + 0) ^	-
Total cost allocated	2 698 960
Rounding difference	40
Total cost per production cost statement	2 699 000

PART H

(a) Quantity statement

Physical units		Output	Equivalent units				
			Raw materials		Conversion cost		
Input		Output					
(units)	Details	(units)	Units	%	Units	%	
	Input						
80 000	Opening WIP						
140 000	Put into production						
	Output						
	Completed from:						
	- Opening WIP	③ 76 000√	-^	0	60 800^	80	
M and cc^	- Current production	104 000^	104 000	100	104 000	100	
	Completed and transferred	180 000	104 000		164 800		
	Normal loss	① 10 000√	10 000^	100	10 000^	100	
	Abnormal loss	② 10 000^	10 000^	100	10 000^	100	
	Closing WIP	20 000^	20 000^	100	18 000^	90	
220 000		220 000	144 000		202 800		

① 220 000 – 20 000 = 200 000
  200 000 x 5% = 10 000
② Balancing figure
③ 20% < 100%, therefore reduce units completed from opening WIP

(b) Production cost statement

	Total	Material	Conversion cost
	R	R	R
Opening WIP	448 000		
Current production cost	2 251 000	588 000	1 663 000
Total	2 699 000		
Equivalent units - per quantity statement		144 000	202 800
Equivalent cost per unit	R12,28=	R4,08 +	R8,20

√√√ (Based on principle; either 3 marks or zero)

(c) Calculation and allocation of the Rand value of the normal loss

NLR = NLM + NLC

= (10 000^ x R4,08^) + (10 000^ x R8,20^)

= R40 800 + R82 000

= R122 800

MATERIAL

	Units	Calculation	R
Completed and transferred	104 000√	104 000 / 114 000 x R40 800	37 221
Abnormal loss	10 000^	10 000 / 114 000 x R40 800	3 579
Closing WIP	0^	-	0
TOTAL	114 000	^For dividing by total and multiplying by 40 800	**40 800**

CONVERSION COST

	Units	Calculation	R
Completed and transferred	164 800√	164 800 / 174 800 x R82 000	77 309
Abnormal loss	10 000^	10 000 / 174 800 x R82 000	4 691
Closing WIP	0^	-	0
TOTAL	174 800	^For dividing by total and multiplying by 82 000	**82 000**

(d) Cost allocation statement

	R
Opening WIP	448 000
Material	320 000^
Conversion cost	128 000^
Current period equivalent production activities	1 890 210
Material (4,08^ x 104 000^)	424 320
Conversion cost (8,20^ x 164 800^)	1 351 360
Normal loss (37 221 + 77 309) ^	114 530
Completed and transferred	2 338 210
Abnormal loss	131 070
Material (4,08^ x 10 000^)	40 800
Conversion cost (8,20^ x 10 000^)	82 000
Normal loss (3 579 + 4 691) ^	8 270
Closing WIP	229 200
Material (4,08 x 20 000) ^	81 600
Conversion cost (8,20^ x 18 000^)	147 600
Normal loss (0 + 0) ^	0
Total cost allocated	2 698 480
Rounding difference	520
Total cost per production cost statement	2 699 000

QUESTION 13 - BUDGETING

Cash budget:

	November R	December R
Opening cash balance (given)	(50 000)^	132 350^
Total receipts	465 250	481 050
Cash sales (given)	35 000^	20 000^
Collections from debtors	430 250[1]	461 050[1]
Total cash available	415 250	613 400
Total payments	(282 900)	(422 800)
Purchases	72 900[1]	172 800[2]
Selling and administrative costs	210 000[3]	250 000[4]
Closing cash balance	132 350	190 600

[1]**Receipts from credit sales:**

	Credit sales	% collected	Amount
November			
			R
September	430 000	15%	64 500^
October	525 000	30%	157 500^
November	425 000	49%*	208 250[a]
			430 250
December			
			R
October	525 000	15%	78 750^
November	425 000	30%	127 500^
December	520 000	49%*	254 800[b]
			461 050

[a] 425 000 x 50% x 98%
[b] 520 000 x 50% x 98%
* 50% - (2% X 50%)

[2]**Payments for purchases:**

	Credit purchases	% paid	Amount
November			
			R
November	162 000	45%	72 900^

December

			R
November	162 000	55%	89 100^
December	186 000	45%	83 700^c
			172 800

^{c} R580 000 + R40 000 = R620 000 x 30% x45%

^{3} R460 000 x 50% - R20 000

^{4} R540 000 x 50% - R20 000

QUESTION 14 (SOLUTION)

(a) <u>Material</u>

AC or AQxAP	AQxSP	SQ allowed x AcProd x SP
	< f u >	
5 x 50 000 x AP	5 x 50 000 x SP	R24 x 50 000 = 1 200 000

Purchase price var.	Quantity var. = R100 000(u) (given)
Total var. = R50 000(f) given	

Calculation of standard price (SP) per kilogram:

(5 x 50 000 x SP) – (R1 200 000)	= R100 000
250 000 SP	= R1 300 000
SP	= R1 300 000^ / 250 000^
SP	= R5,20 per kg

Purchase price variance	= Total variance - quantity variance
	= R50 000 (f) – R100 000 (u)
	= R150 000 (f)^

Calculation of actual price (AP) per kilogram:

(5 x 50 000 x AP)^–(5 x 50 000 x 5,20)^	= -R150 000
250 000 AP – 1 300 000	= -R150 000
250 000 AP	= R1 150 000
AP	= R1 150 000 / 250 000^
AP	= R4,60 per kg

(b) (i) – (iii) <u>Labour</u>

AC or AHxAR	AHxSR	SH allowed x AcProd x SR
R1 034 000^	(1 034 000 / 94)^ x 90^ = R990 000 ^(for ii)	18 / 90 x 50 000 x 90 = 0,2 X 50 000 x 90 = R900 000

< f   u >

(i) Rate var. = R44 000(u)^	(ii) Efficiency var. = R90 000(u)^

(iii) Total var. = R44 000^ (u) + R90 000^ (u) = R134 000 (u)

(iv) – (v) <u>Variable manufacturing overheads</u>

AC or AHxAR	AHxSR	SH allowed x AcProd x SR

< f   u >

R500 000^	1 034 000 / 94 x R10/(18/90) = 11 000^ x R50^ = 550 000 ^(for v)	18/90 x 50 000 x R50 = R500 000

(iv) Rate var. = R50 000 (f)^	(v) Efficiency var. = R50 000 (u)^

Total var.

(vii) <u>Sales</u>

AIncome   AQxSP   This leg will
or   not be
                                                   required
AQxAP   from
                                                   MAC2601
                                                   students

                      > f   u <

R3 400 000^   50 000^ x R70^
                                = R3 500 000

(vi) Selling price var. = R100 000 (u)^   Quantity var.

                          Total var.

QUESTION 15 (SOLUTION)

1. Limiting factor

	Soothing Care	Sensitive Care	Classic Care
Demand	8 000	12 000	7 000
Production rate per labour hour	80	120	100
Hours required	100	100	70

Total hours required:	270	(100 + 100 + 70)
Available hours	250	
Limitation:	20 (√)	

2. Contribution per unit

	Soothing Care	Sensitive Care	Classic Care
Selling price	60	65	70
Variable manufacturing costs	(20)	(25)	(15)
Variable selling costs	(5)	(3)	(4)
Contribution per unit	35 (√)	37 (√)	51 (√)

3. Contribution per limiting factor

	Soothing Care	Sensitive Care	Classic Care
Contribution per unit (R)	35	37	51
Multiply by:			
Units per labour hour	80	120	100
Contribution per labour hour (R)	2 800 (√)	4 440 (√)	5 100 (√)

4. Identify the order in which the labour hours should be used to manufacture products

1. Classic   R5 100 per labour hour (√)
2. Sensitive   R4 440 per labour hour (√)
3. Soothing   R2 800 per labour hour (√)

5. Allocate the labour hours

Labour hours available	250
1. Classic	70 (√)
Balance	180
2. Sensitive	100 (√)
Balance	80
3. Soothing	80 (√)

QUESTION 16 – SENSITIVITY ANALYSIS

1. High/Low method: 7 marks

Month	Cost	Activity
June	R150 000	30 000 √
August	R 90 000	15 000 √
Difference	R 60 000	15 000

R60 000 divided by 15 000   = R4 per unit √

Variable cost   = R4 per unit

Fixed costs   = R150 000 – (30 000*R4) √
                                       = R30 000

Contribution per ticket

Selling price	=R35
Variable cost	= (R4)
Contribution per unit	= R31 √

Breakeven units= Fixed costs/ contribution per unit = 30 000/31=R968 tickets per month

2 Marks: 1 Mark for R30 000 and 1 mark for dividing by R31 correct contribution √
Bonus mark for calculating the correct breakeven point [Max: 7]

2. Tickets to be sold to obtain R20 000 target profit

= (Fixed costs+ target profit)/ contribution per unit
= (R30 000 (√) +R20 000 (√))/R31
= 1613 tickets (√)

3. Profit from the sale of 3 000 tickets

Contribution (3 000*R31) = R93 000 (√)
Fixed costs   = (R30 000) (√)
Net profit   = R63 000 (√)

4. What selling price have to be charged to show profit of R40 000 on sale of 3 000 tickets

Total Revenue   = R82 000 (√)
Variable costs (3 000* R4)   = R12 000 (√)
Fixed costs   = R30 000 (√)
Target profit   = R40 000 (√)

Sales Revenue/ tickets to be sold= R82 000/3000 tickets= R27,33

5. How many additional tickets have to be sold to cover R10 000 additional fixed costs of billboard advertisements next to the M2 highway and still break even (SP = R35)

Additional fixed costs: R10 000(√) / R31 (√) contribution per unit= 323 tickets (√)

Alternative answer

R40 000 divide by R31 = 1 291 tickets Additional tickets= 1 291 - 968 = 323 tickets (R40 000 = R30 000 + R10 000

QUESTION 17 (SOLUTION)(10 marks)

OBSERVATION N	VOLUME x (Independent variable)	TOTAL COSTS y (Dependent variable)	xy	x^2
1	180	311 000	55 980 000	32 400
2	195	333 000	64 935 000	38 025
3	160	278 500	44 560 000	25 600
4	175	301 000	52 675 000	30 625
5	200	345 000	69 000 000	40 000
6	210	350 000	73 500 000	44 100
7	215	348 000	74 820 000	46 225
8	240	395 000	94 800 000	57 600
9	240	393 000	94 320 000	57 600
10	205	348 000	71 340 000	42 025
11	185	318 000	58 830 000	34 225
12	170	290 000	49 300 000	28 900
∑	**2 375**	**4 010 500**	**804 060 000**	**477 325**

Substituting these values into the normal equation, we obtain:

$$804\ 060\ 000 = a\ (2\ 375) + b\ (477\ 325) \qquad ③$$

$$4\ 010\ 500 = a\ (12) + b\ (2\ 375) \qquad ④$$

Note from tutors (this paragraph is for illustrative/explanatory purposes only):

We solve **b** by eliminating **a**. To do this, we need to have the same coefficient for **a** in each equation. This is done by multiplying equation ③ by 12 and equation ④ by 2 375. By obtaining the difference between the two new equations, **a** is eliminated, and **b** can be solved.

We then obtain the following:

$$9\ 648\ 720\ 000 = 28\ 500\ a + 5\ 727\ 900\ b \qquad ⑤\ (③\ \text{x } 12)$$

$$\underline{9\ 524\ 937\ 500} = \underline{28\ 500\ a + 5\ 640\ 625\ b} \qquad ⑥\ (④\ \text{x } 2\ 375)$$

$$123\ 782\ 500 = 87\ 275\ b \qquad ⑦\ (⑤ - ⑥)$$

Solving equation ⑦ for **b**, we obtain

$$b = \underline{\qquad\qquad}$$

$$b = \underline{1\ 418,30} \text{ (rounded off to two decimals)}$$

Solve **a** by substituting the value of **b** into any of the equations containing **a**. Doing this in equation ④ , we obtain:

12a	=	4 010 500 – 2 375 (1 418,30)
12a	=	4 010 500 – 3 368 462,50
12a	=	642 037,50
a	=	<u>R53 503,13</u> (rounded off to two decimals)

The resulting cost estimation equation is:

Total costs (*y*)	=	R53 503,13 + R1 418,30*x*

Answer: Variable cost per unit   **R1 418,30**

Fixed costs for the year   R53 503,13 per month x 12 months

= **R642 037,56**

QUESTION 18 (SOLUTION) (10 marks)

INDEPENDENT PART A – MATERIAL

(a)   We ignore the warehouse rent, as it is a fixed cost that does not vary with the size of the order.

Steel pipes EOQ   = $\sqrt{}$

= $\sqrt{\dfrac{}{}}$

= $\sqrt{\dfrac{}{}}$

= $\sqrt{\dfrac{}{}}$

=   623 steel pipes per order (rounded off to the nearest integer)

Note from tutors:

Problems with the printing of the square root symbols (√) are sometimes experienced, so in some places we have typed out in words that we calculate the square root of a number. In hand-written answers, students have to use the normal symbol to embrace the number they are calculating the square root of.

INDEPENDENT PART B – OVERHEADS

(b)

Overhead	Basis	Production		Service		
		VEEY R	Wayne R	Yola R	Yankee R	TOTAL R
Primary allocation	Given	600 000	200 000	100 000	50 000	950 000
Secondary allocation						
Allocation of Yankee	Floor area - m²	35 000	10 000	5 000	-50 000	
		635 000	210 000	105 000		
Allocation of X-ray	No. of employees	82 500	22 500	-105 000		
		717 500	232 500			

Calculation of overhead allocation rate for Wayne:

_____		_____

Allocation rate   R38,75

Rounded to the nearest Rand   R39

QUESTION 19 (SOLUTION)(10 marks)

(a) FIFO METHOD

Inventory ledger card:

Date	Receipts			Issues			Balance		
	Quantity	Price R	Amount R	Quantity	Price R	Amount R	Quantity	Price R	Amount R
May									
1							300	9,00	2 700,00
4	250	9,80 [1]	2 450,00				300 250	9,00 9,80	2 700,00 2 450,00
7				300 10	9,00 9,80	2 700,00 98,00	240	9,80	2 352,00
11	(40)	(9,80)	(392)				200	9,80	1 960,00
15				(10)	(9,80)	(98,00)	210	9,80	2 058,00

Inventory value (15 May 2014):

R2 058

Explanations:

Note from tutors:

Students are not required to show the following explanations; however, where freight charges are applicable, the relevant calculations (see calculations in bold in the explanation for 4 May below) should be shown and cross-referenced to in the inventory ledger card.

Date

4   Two batches are available: 300 units @ R9,00, which came in first, and 250 units @ R9,80, which came in last. (The freight charges of R75 must be added to the cost of the batch.)

①
(250 x R9,50) + R75 = R2 450; R2 450 ÷ 250 = R9,80)

7   A quantity of 310 units is issued: 300 units @ R9,00 are issued first, then the balance of 10 units (310 – 300) from the 250 units @ R9,80.

11   The 40 units are returned @ the price at which they were purchased on 4 May 2014.

     (Returns to suppliers are treated as negative receipts and subtracted from the balance.)

15   The units returned from the factory are from the last issue. Returns from the factory are treated as negative issues and added to the balance.

(b)   WEIGHTED AVERAGE METHOD

Inventory ledger card:

Date	Receipts			Issues			Balance		
	Quantity	Price	Amount	Quantity	@ average price	Amount	Quantity	Average price (calc)	Amount
May		R	R		R	R		R	R
1							300	9,00	2 700,000
4	250	9,800 ②	2 450,000				300		2 700,000
							250		2 450,000
							550	9,364	5 150,000
7				310	9,364	2 902,840	240	9,363 ③	2 247,160
11	(40)	(9,800)	(392,000)				240		2 247,160
							(40)		(392,000)
							200	9,276	1 855,160
15				(10)	(9,364)	(93,640)	200		1 855,160
							10		93,640
							210	9,280	1 948,800

☎ ♂ ↻ ①
     From (a)

Although, in principle, issues to the factory or manufacturing department do not lead to a change in the weighted average price, there might be a small difference from one balance's average

price to the next after an issue, so we expect you to calculate the "new" weighted average price after an issue as well. It can be calculated as the **amount** of the latest balance divided by the **quantity** of the latest balance, for example: R2 247,160 / 240 units = R9,363 per unit after the issue on 7 May.

Explanations:

Note from tutors:

Students are not required to show the following explanations.

Date

4	The average price of the units in inventory after the receipt must be calculated:					
	Add the units	(300	+	250	=	550)
	and the total cost	(R2 700	+	R2 450	=	R5 150)
	Divide the total cost by the total units to obtain the average price per unit.	(R5 150	÷	550	=	R9,364)
7	All the units are issued at the average price.	(310	x	R9,364	=	R2 902,840)
	Refer to the tutors' note ③ above. The rounding causes a small change in the average.	(550	-	310	=	240)
		(R5 150,000	-	R2 902,840	=	R2 247,160)
		(R2 247,160	÷	240	=	R9,363)
11	Units are returned to the supplier at the actual cost price on 4 May. A new average price is calculated.	(R1 855,16	÷	200	=	R9,276)
15	Units are returned from the factory at the average price at which they were last issued. The last issue was on 7 May at R9,364 per unit.					

Inventory value (15 May 2014):

R1 948,80

QUESTION 20 (SOLUTION) (15 marks)

= **(i)   FIFO: Direct**

costing SAGOLE

Contribution statement of comprehensive income for the year ended 31 December 2014

	R
Sales (7 500 x R600)	4 500 000
Less: Variable costs	(2 865 000)
Opening inventory (1 500① x R330②)	000
Variable manufacturing costs (8 000 x R370③)	☐ 960 000
Cost of goods available for sale	☐ 455 000
Less: Closing inventory (2 000① x R370③)	(740 000)
Variable manufacturing cost of sales	(d) 715 000
Variable selling and admin costs (7 500 x R20)	000
Contribution	(d) 635 000
Less: Fixed costs	(830 000)
Selling and admin (R35 000 + R25 000)	000
Manufacturing (given)	000
Net profit before tax	805 000

(ii) FIFO: Absorption costing

SAGOLE

Statement of comprehensive income for the year ended 31 December 2014

	R
Sales (from (i))	4 500 000
Less: Cost of sales Opening inventory (④)	(3 467 500)
Variable manufacturing costs (from (i)) Fixed manufacturing costs (given)	i 000
	6.960 000
Cost of goods available for sale	000
Less: Closing inventory (2000①/8000 x R3 730 000⑤)	4 400 000
	(932 500)
Gross profit	
Less: Selling and administration costs	1 032 500
Variable (from (i))	(210 000)
Fixed (from (i))	150 000
Net profit before tax	60 000
	822 500

① **Calculation of opening and closing inventory in <u>units</u>:**

Units	2013	2014
Opening inventory	2 000	1 500
Add: Production	6 000	8 000
Available for sale	8 000	9 500
Less: Sales	(6 500)	(7 500)
Closing inventory	1 500	2 000

② R150 + R120 + R60 = R330

③ R150 + R140 + R80 = R370

④ Total production costs for 2013:

	R
Variable manufacturing costs (6 000 x R330 ②)	1 980 000
Fixed manufacturing costs	700 000
	2 680 000

Opening inventory value:

$$—— \quad x \quad R2\,680\,000 \quad = \quad R670\,000$$

⑤ Total production costs for 2014:

	R
Variable manufacturing costs (from (i))	2 960 000
Fixed manufacturing costs (given)	770 000
	3 730 000

(b) Reconciling net profit before tax:

	R
Net profit before tax according to:	
Direct costing	805 000
Absorption costing	822 500
Difference to be reconciled	17 500
Opening inventory according to:	
Direct costing	495 000
Absorption costing	670 000
Difference	175 000

QUESTION 20 (SOLUTION) (continued)

Closing inventory according to:

Direct costing	740 000
Absorption costing	932 500
Difference	192 500

Reconciliation in rand value:

Opening inventory difference	175 000
Closing inventory difference	192 500
Difference in profits before tax	17 500

Reconciliation in units:

Fixed costs in opening inventory (R700 000/6 000 x 1 500)	175 000
Fixed costs in closing inventory (R770 000/8 000 x 2 000)	192 500
Difference	17 500

Note from tutors:

Should a reconciliation of net profits according to the direct and absorption costing methods be asked in **an exam and:**

- **the question count three marks or less, and**

- **the question does not specify whether you have to do the reconciliation in rand value, in units, or both**

then the reconciliation in units should be the shortest and, therefore, the recommended method.

QUESTION 21 – ABC (15 marks)

(a) Calculation of the activity rates (also called "activity cost rates"):

Activities	*(A)* Overhead	*(B)* Total cost driver	*(A) ÷ (B)* Activity rate
Safety inspections	R 180 000	60 safety inspections	R3 000 per safety inspection
Nuclear inspections	R 500 000	25 nuclear inspections	R20 000 per nuclear inspection
Ordering	R 60 000	60 orders	R 1 000 per order

QUESTION 21 (SOLUTION) (Continued)

(b)   Calculation of the total manufacturing cost per product:

	Gamma-ray R	Delta-ray R	Echo-ray R
Direct material	125 000[1]	60 000[1]	160 000[1]
Direct labour	187 500[2]	80 000[2]	320 000[2]
Safety inspections	81 000[3]	45 000[3]	54 000[3]
Nuclear inspections	100 000[4]	200 000[4]	200 000[4]
Ordering costs	15 000[5]	30 000[5]	15 000[5]
Total manufacturing cost	**508 500**	**415 000**	**749 000**

[1]**Direct material**

Gamma-ray R50 x 2 500 units = R125 000; Delta-ray R30 x 2 000 units = R60 000; Echo-ray R40 x 4 000 units = R160 000

[2]**Direct labour**

Gamma-ray R75 x 2 500 units = R187 500; Delta-ray R40 x 2 000 units = R80 000; Echo-ray R80 x 4 000 units = R320 000

[3]**Safety inspections: R3 000 per safety-inspection**

Gamma-ray R3 000 x 27 = R81 000; Delta-ray R3 000 x 15 = R45 000; Echo-ray R3 000 x 18 = R54 000

[4]**Nuclear inspections: R20 000 per nuclear inspection**

Gamma-ray R20 000 x 5 = R100 000; Delta-ray R20 000 x 10 = R200 000; Echo-ray R20 000 x 10 = R200 000

[5]**Ordering costs: R1 000 per order**

Gamma-ray R1 000 x 15 = R15 000; Delta-ray R1 000 x 30 = R30 000; Echo-ray R1 000 x 15 = R15 000

QUESTION 22-(SOLUTION) (15 marks)

THE TOWNHOUSE POOL COMPANY

GENERAL LEDGER

Material Inventory Control

Opening balance	100 500	WIP (111 000 + 46 000)	157 000
Creditors (47 000 + 43 000)	90 000	Factory overhead control	6 900
Creditors	10 200	Balance b/d	36 800
	200 700		200 700
Balance b/f	36 800		

WIP Control

Opening balance	40 800	Finished goods	325 800
Materials control	157 000		
Factory Salaries + Wages control	140 000		
Factory overhead control	112 000	Balance b/d	124 000
	449 800		449 800
Balance b/f	124 000		

Finished Goods Control

Opening balance	10 000	COS	255 800
WIP	325 800	Balance b/d	80 000
	335 800		335 800
Balance b/f	80 000		

Factory Salaries and Wages Control

Salaries payable	200 000	WIP	140 000
		Factory overhead control	60 000
	200 000		200 000

Factory Overhead Control

Materials control	6 900	WIP (140 000 x 80%)	112 000
Factory salaries + wages control	60 000	COS (Under-applied OH)	1 200
Creditors (6 300 + 10 900 + 3 600 + 5 500 + 20 000)	46 300		
	113 200		113 200

Cost of Sales (COS)

Fin. Goods	255 800	Trading account	257 000
Factory overhead control	1 200		
	257 000		257 000

12

Creditors

Balance b/d	146 500	Materials control	90 000
		Materials control	10 200
		Factory OH control	46 300
	146 500		146 500
		Balance b/f	146 500

Trading Account

Cost of sales	257 000	Sales	
Profit and loss (I/s)	93 000		
	350 000		350 000

Salaries and Wages Payable

Balance b/d	252 000	Factory Salaries + Wages control	200 000
		Non-manufacturing salaries + wages	52 000
	252 000		252 000
		Balance b/f	252 000

Non-manufacturing Salaries and Wages

Salaries and Wages payable	52 000	Profit and loss (I/s)	52 000

Debtors

Sales	350 000	Balance b/d	350 000
	350 000		350 000
Balance b/f	350 000		

Sales

Trading account	350 000	Debtors	350 000

Note from tutors:

- We have assumed that all purchases and sales are on credit, as it was not specified whether they were for cash or on credit. If students had "Bank" instead of "Creditors" or "Debtors" (as applicable), this would also have been correct.

- The most important of the above **general ledger** accounts are Materials inventory control, WIP control, Finished goods control, Factory Salaries and Wages Control, Factory Overhead Control, Cost of Sales (COS) and Sales. If this was an exam question, the majority of marks would have been awarded to these accounts and the cost ledger. Remember to balance your accounts.

THE TOWNHOUSE POOL COMPANY

COST LEDGER

Job 1

Opening balance	40 800	Sold	255 800
Direct material	105 000	Finished goods ledger	70 000
Direct labour	100 000		
Applied manufacturing OH	80 000		
(80% x 100 000)			
	325 800		325 800

Job 2

Direct material	52 000	Balance b/d	124 000
Direct labour	40 000		
Applied manufacturing OH	32 000		
(80% x 40 000)			
	124 000		124 000
Balance b/f	124 000		

QUESTION 23 –(SOLUTION) (15 marks)

(a)   Quantity statement: WP = 40%; weighted average method

Physical units			Equivalent units				
Input		**Output**	**Raw materials**		**Conversion cost**		
(units)	**Details**	**(units)**	**Units**	**%**	**Units**	**%**	
	Input						
25 000	Opening WIP						
180 000	Put into production						
	Output						
	Completed and transferred	120 000	120 000	100	120 000	100	
	Normal loss	① 9 000	9 000	100	3 600	40	
	Abnormal loss	② 16 000	16 000	100	6 400	40	
	Closing WIP	60 000	60 000	100	42 000	70	
205 000		205 000	205 000		172 000		

①   205 000 – 25 000 =   180 000

②   180000 x 5%   =   9 000

Balancing figure

(b)   Production cost statement – Weighted average method

	Total	Material	Conversion cost
	R	**R**	**R**
Opening WIP	872 000	508 000	364 000
Current production cost	10 486 050	4 348 450	6 137 600
Total	11 358 050	4 856 450	6 501 600
Equivalent units - per quantity statement		205 000	172 000
Equivalent cost per unit	61,49=	R23,69 +	R37,80

(c)   Calculation of the Rand value of the normal loss in terms of _conversion_ only

3 600 x R37,80 = R136 080

(d)   Allocation of the Rand value of the normal loss in terms of _material only_

	Units	Calculation	R
Completed and transferred	120 000	120 000/ 196 000 x R213 210	130 537
Abnormal loss	16 000	16 000/ 196 000 x R213 210	17 405
Closing WIP	60 000	60 000/ 196 000 x R213 210	65 268
TOTAL	196 000		**213 210**

Note from tutors:

Although the opening WIP has already passed the wastage point in the previous period, the exception on page 290 of your Guide 1 is applicable and opening WIP will therefore be included in the above allocation (in "Completed and transferred"). The abnormal loss is also included in the allocation, as it

occurs at the same stage as the normal loss. The closing WIP is also included in the allocation, as closing WIP passes the wastage point in the current period.

QUESTION 24 (SOLUTION) (10 marks)

(a)

(i) Physical standard method

Joint products	Production	Allocation of joint costs
	(litres)	R
B-Chem	3 500	210 000 [1]
C-Chem	2 500	150 000 [2]
D-Chem	2 000	120 000 [3]
Total	8 000	480 000

[1] 3 500/8 000 x R480 000 = R210 000

[2] 2 500/8 000 x R480 000 = R150 000

[3] 2 000/8 000 x R480 000 = R120 000

(ii) Market value at split-off point method

Joint products	Sales value at split-off point	Allocation of joint costs
	R	R
B-Chem	252 000 (R72 x 3 500)	170 847 [1]
C-Chem	240 000 (R96 x 2 500)	162 712 [2]
D-Chem	216 000 (R108 x 2 000)	146 441 [3]
Total	708 000	480 000

[1] 252 000/708 000 x R480 000 = R170 847

[2] 240 000/708 000 x R480 000 = R162 712

[3] 216 000/708 000 x R480 000 = R 46 441

(iii) Net realisable value at split-off point (NRV method)

Joint products	NRV @ split-off point	Allocation of joint costs
	R	R
B-Chem	180 000 (R120 x 3 500 - R240 000)	77 838 [1]
C-Chem	480 000 (R240 x 2 500 – R120 000)	207 568 [2]
D-Chem	450 000 (R360 x 2 000 – R270 000)	194 595 [3]
Total (allocated)	1 110 000	480 001
Total joint costs		480 000

Rounding difference (1)

① 180 000/1 110 000 x R480 000   =   R 77 838

② 480 000/1 110 000 x R480 000   =   R207 568

③ 450 000/1 110 000 x R480 000   =   R194 595

Note from tutors: It is important that students use the market price of the FINAL product when they apply the NRV method (see Guide 1, page 329). Note that there were no selling and admin costs in the question, but students also need to know how to handle these.

(b)

(i) A product that is insignificant in value to the joint products, incidental to the manufacturing process and on which the organisation's survival is *not* dependent (Study guide 1, page 327 or 359).

(ii) A by-product with no sales value, which sometimes may lead to costs when the organisation gets rid of it in terms of health or environmental regulations (Study guide 1, page 328 or 369).

Note from tutors: Do not write down unnecessary headings or re-write the "required" in an exam. Please just make sure your numbering is exactly the same as in the question paper.

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