ACN203S Discussion class – 2nd semester 2012

ACN203S

Questions to be discussed will be from the first semester (TL101 2012)

8:30 – 12:00

(Classes will be presented only in English)

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GENERAL MATTERS: EXAM FORMAT
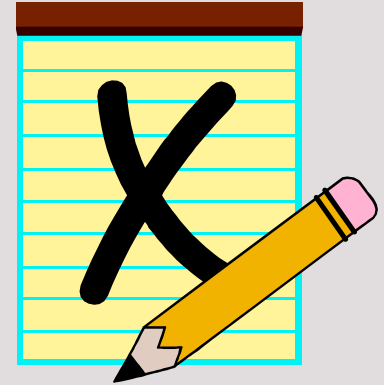
- 100 marks
- 2 hours
- 5 Questions (20 marks each)
- Previous exams uploaded on *MyUnisa*.
- Do not spot!
- English & Afrikaans available to student

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TOPICS TO BE DISCUSSED:

1. Process Costing

2. Direct and absorption costing

3. Standard Costing

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PROCESS COSTING

INPUT

W-I-P
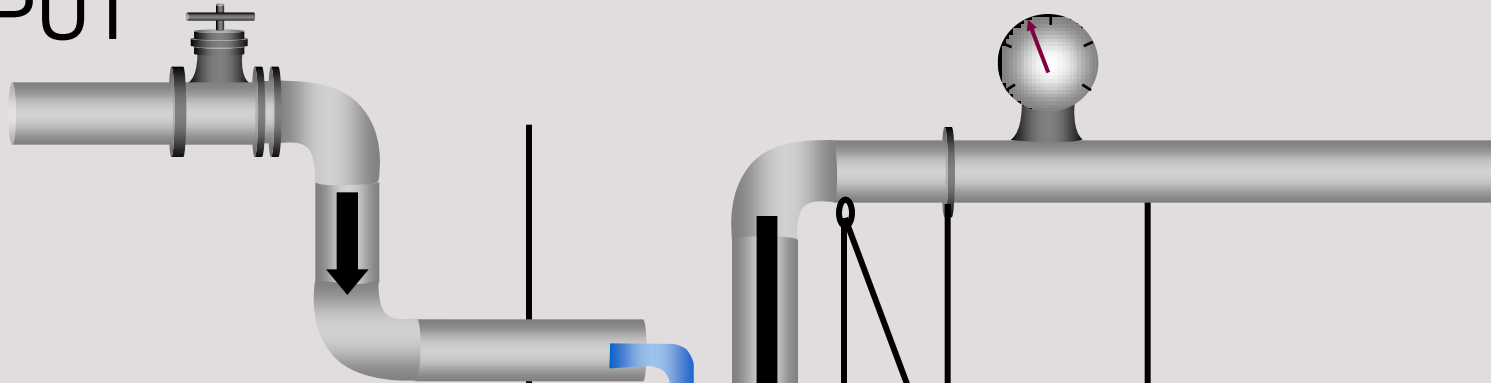
LOSSES

Normal & abnormal

OUTPUT

Process costing - statements

3 Process cost reports:

1) Quantity statement
   (also called production statement)
2) Production cost statement
3) Cost allocation statement
   (also called allocation statement)

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-The weighted average method

-FIFO-method

"What's the difference?"

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1. QUANTITY STATEMENT

<u>FIFO:</u> Opening work in process (units) kept separate from units started and completed in the current period.

<u>WAM:</u> All units completed and transferred out are treated identically (opening WIP and units started and completed are combined in the output column).

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Process costing – methods of stock valuation

2. PRODUCTION COST STATEMENT

FIFO: Only uses current period costs per equivalent unit.

WAM: All costs incurred (this period and prior period) are added together to find total costs for equivalent units produced.

3. ALLOCATION STATEMENT

The position of the normal loss allocated to units completed and transferred differs.

Note: Disclose opening costs separately under FIFO.

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Quantity statement format (WAM)

Quantity statements: Weighted average method of stock valuation

Wastage point: ___ %

Input (units)	Details	Output (units)	Equivalent units			
			Raw materials		Conversion	
			Units	%	Units	%
	Work-in-process -					
	Put into production					
	Completed and transferred					
	Normal loss					
	Abnormal loss					
	Work-in-process -					

Quantity statement format (FIFO)

Quantity statement: First in first out method of stock valuation.

Wastage point: %

Input (units)	Details	Output (units)	Equivalent units			
			Raw materials		Conversion costs	
			Units	%	Units	%
	Work-in-process					
	Put into production					
	Completed from:					
	- Opening stock.					
	- Current production					
	Completed and transferred					
	Normal loss					
	Abnormal loss					
	Work-in-process					

Step ① Fill in the inputs

(Normally given in the question)

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Quantity statement - Step ①

(0%) – Beginning of process

Input (units)	Details	Output (units)	Material Units	Material %	Conversion Units	Conversion %
1 600	Work-in-process (1 February 2011)					
3 400	Put into production					
5 000						

Does not depend on stock valuation method or wastage point.

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Step ② Total input = output

(Everything put into the process must be accounted for)

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Quantity statement Step ②

Input (units)	Details	Output (units)	Equivalent units Material Units	%	Conversion Units	%
	(0%) – Beginning of process					
1 600	Work-in-process (1 February 2011)					
3 400	Put into production					
	Completed and transferred					
	Normal loss					
	Abnormal loss					
	Work-in-process (28 February 2011)					
5 000		5 000				

Step ③ Fill in the output-unit column

(WAM vs FIFO)

Quantity statement - Step ③

WA

(25%)

Input (units)	Details	Output (units)
1 600	Work-in-process (1 February 2011)	
3 400	Put into production	
	Completed and transferred	2 500
	Normal loss	500
	Abnormal loss	1 200
	Work-in-process (28 February 2011)	800
5 000		5 000

FIFO

(25%)

Input (units)	Details	Output (units)
1 600	Work-in-process (1 February 2011)	
3 400	Put into production	
	Completed from:	
	- Opening stock	1 440
	- Current production	1 060
	Completed and transferred	2 500
	Normal loss	500
	Abnormal loss	1 200
	Work-in-process (28 February 2011)	800
5 000		5 000

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Quantity statement - Step ③

Look for:
O/s Conversion %
C/s Conversion %
Stock valuation method
Where wastage occurs

Quantity statement: output column
Calculation of normal loss (always start with the total of the input columns; apply the two separate rules):

      Rule 1: If O/s Conversion % >= WP, EXCLUDE O/s from calc.
      Rule 2: If C/s Conversion % < WP, EXCLUDE C/s from calc.

O/s for FIFO: If rule 1 is false (i.e. O/s was included in calc. of NL, decrease O/s in output column)

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Quantity statement - steps to follow

Step ④ Fill in the EQUIVALENT UNITS:

WIP opening
(What still needs to happen in current process?)

WIP closing
(What has already happened in the current process?)

Quantity statement - Step ④ Equivalent units

Output	Equivalent units
O/s (FIFO)	100% - % of completion
Current production (FIFO) / C+T (WAM)	100%
C/s	% of completion
AL	M 100% C WP
NL	If C/s Conversion % >= WP: Zero If C/s Conversion % < WP: Do as for AL

Quantity statement - Step ④ Equivalent units

25%; weighted average method

(25%) Input (units)	Details	Output (units)	Equivalent units Material Units	%	Conversion Units	%
1 600	Work-in-process (1 February 2011)					
3 400	Put into production					
	Completed and transferred	2 500	2 500	100	2 500	100
	Normal loss	500②	-	0②	-	0②
	Abnormal loss	1 200	1 200	100	300	25
	Work-in-process (28 February 2011)	800	800	100	400	50②
5 000		5 000	4 500		3 200	

Quantity statement - Step ④ Equivalent units

25%; FIFO method

(25%)			Equivalent units			
			Material		Conversion	
Input (units)	Details	Output (units)	Units	%	Units	%
1 600	Work-in-process (1 February 2011)					
3 400	Put into production					
	Completed from:					
	- Opening stock	1 440⑥	-	0	1 224	85
	- Current production	1 060	1 060	100	1 060	100
	Completed and transferred	2 500	1 060		2 284	
	Normal loss	500⑦	-	0⑦	-	0⑦
	Abnormal loss	1 200	1 200	100	300	25
	Work-in-process (28 February 2011)	800	800	100	400	50⑦
5 000		5 000	3 060		2 984	

75%; weighted average method

(75%)	Input (units)	Details	Output (units)	Material Units	Material %	Conversion Units	Conversion %
	1 600	Work-in-process (1 February 2011)					
	3 400	Put into production					
		Completed and transferred	2 500	2 500	100	2 500	100
		Normal loss	420③	420	100③	315	75③
		Abnormal loss	1 280	1 280	100	960	75
		Work-in-process (28 February 2011)	800	800	100	400	50③
	5 000		5 000	5 000		4 175	

Quantity statement - Step ④ Equivalent units

75%; FIFO method

(75%)					Equivalent units		
				Material		Conversion	
Input (units)	Details	Output (units)	Units	%	Units	%	
1 600	Work-in-process (1 February 2011)						
3 400	Put into production						
	Completed from:						
	- Opening stock	1 440⑥	-	0	1 224	85	
	- Current production	1 060	1 060	100	1 060	100	
	Completed and transferred	2 500	1 060		2 284		
	Normal loss	420③	420	100③	315	75③	
	Abnormal loss	1 280	1 280	100	960	75	
	Work-in-process (28 February 2011)	800	800	100	400	50③	
5 000		5 000	3 560		3 959		

Production cost statement

WAM Include O/s in calc. of cost per equivalent unit

FIFO Exclude O/s from calc. of cost per equivalent unit

Production cost statement (25%; weighted average)

WA (25%):

	R
Opening work-in-process for February 2012	
Material	180 000
Conversion costs	240 000
February 2012 production costs	
Material	675 000
Conversion costs	525 000

	Total R	Material R	Conversion costs R
Work in process on 1 February 2012	420 000	180 000	240 000
Current production	1 200 000	675 000	525 000
Total	1 620 000	855 000	765 000
Equivalent units		4 500	3 200
Cost per equivalent unit (total costs / equivalent unit column totals)	**R429,06**	**R190,00**	**R239,06**

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Production cost statement (25%; FIFO)

	R
Opening work-in-process for February 2012	
Material	180 000
Conversion costs	240 000
February 2012 production costs	
Material	675 000
Conversion costs	525 000

FIFO (25%):

	Total R	Material R	Conversion costs R
Work in process on 1 February 2012 (R180 000 + R240 000)	420 000		
Current production	1 200 000	675 000	525 000
Total	1 620 000		
Equivalent units		3 060	2 984
Cost per equivalent unit (current production costs / equivalent unit column totals)	R396,53	R220,59	R175,94

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Cost allocation statement

Cost allocation statement
- NL calc. and allocation: Do only if C/s Conversion % < WP
- Use M & C units from separate equivalent unit columns in quantity statement and R/unit from production cost statement to calculate NL in Rand
- Allocate to AL & Completed and transferred units (from output column)
- WAM format:

  C+T
  - M
  - C
  - NL

  AL
  - M
  - C
  - NL

  WIP (Closing)
  - M
  - C

- FIFO format:

  WIP (opening) - usually given
  Current production (work with totals)
  - M
  - C
  - NL

  = C+T

  AL
  - M
  - C
  - NL

  WIP (Closing)
  - M
  - C

Cost allocation statement (25%; weighted average)

Cost allocation statement (weighted average; 25%)	
Completed and transferred	1 072 650
Material (2 500 x 190)	475 000
Conversion costs (2 500 x 239,06)	597 650
Cost of normal loss allocated (not applicable)	-
Abnormal loss	299 718
Material (1 200 x 190)	228 000
Conversion costs (300 x 239,06)	71 718
Cost of normal loss allocated (not applicable)	-
Work-in-process 31 January 2010	247 624
Material (800 X 190)	152 000
Conversion costs (400 X 239,06)	95 624
Total costs allocated	1 619 992
Rounding difference	8
Total costs to be allocated as per production cost statement	1 620 000

Cost allocation statement (25%; FIFO)

Cost allocation statement (FIFO; 25%)

Work-in-process 1 January 2010	420 000
Material (given)	180 000
Conversion costs (given)	240 000
Current production	635 672
Material (1 060 x 220,59)	233 825
Conversion costs (2 284 x 175,94)	401 847
Cost of normal loss allocated (not applicable)	-
Cost of production transferred	1 055 672
Abnormal loss	317 490
Material (1 200 x 220,59)	264 708
Conversion costs (300 x 175,94)	52 782
Cost of normal loss allocated (not applicable)	-
Work-in-process 31 January 2010	246 848
Material (800 X 220,59)	176 472
Conversion costs (400 X 175,94)	70 376
Total costs allocated	1 620 010
Rounding difference	(10)
Total costs to be allocated as per production cost statement	1 620 000

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Cost determination methods

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DIRECT & ABSORPTION COSTING

AIM?

➤ To find the cost of manufacturing one unit (product cost).

WHY?

➤ For ACN203S- Inventory valuation purpose & profit determination

HOW?

➤ Direct costing method or Absorption costing

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DIRECT COSTING METHOD

➢ Direct costing includes <u>only variable manufacturing costs</u> when valuing stock.

THUS

➢ Opening stock units @ variable cost per unit

➢ Current production units @ variable cost per unit

➢ Closing stock units @ variable cost per unit

DIRECT COSTING METHOD (cont.)

➢ **Non-manufacturing variable costs** (e.g. selling and administration costs) are taken into account to calculate **marginal income**

➢ **All fixed costs (manufacturing & non-manufacturing)** are **not** included when valuing stock. These costs are considered as **period costs** and are charged directly to profit. (I/S)

➢ **FIFO AND WEIGHTED AVERAGE METHOD** (Effect on direct costing Income statement). *Refer Question 3, Assignment 2/2012.*

➢ Income statement example – next slide

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DIRECT COSTING METHOD (cont.)

Directing costing Income statement

Sales	xxx
Less: Variable cost of sales	(xxx)
Opening stock	xx
Production: variable **manuf.** costs	xx
Less: closing stock	(xxx)
Less: Variable selling & Admin costs	(xxx)
Marginal income	xxx
Less: Fixed costs	(xxx)
Production	xx
Adminstration	xx
Net Profit	xxx

ABSORPTION COSTING METHOD

➤ When using absorption costing method, <u>fixed manufacturing costs</u> are also allocated to individual products and included in valuing stock.

THUS

➤ Opening stock units @ variable & fixed manufacturing cost per unit

➤ Current production units @ variable & fixed manufacturing cost per unit

➤ Closing stock units @ variable & fixed manufacturing cost per unit

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ABSORPTION COSTING METHOD (cont.)

➢ **Non-manufacturing costs** (variable and fixed costs) are treated as **period costs** and are charged directly to income.

➢ **FIFO AND WEIGHTED AVARAGE METHOD** (Effect on Absorption costing Income statement). *Refer Question 3, Assignment 2/2012 (First semester).*

➢ Income statement example – next slide

Absorption costing Income statement

Sales	xxx
Less: Cost of sales	(xxx)
Opening stock	xx
Production: variable & fixed **manuf.** costs	xx
Less: closing stock	(xxx)
Gross profit	xxx
Less: Non-manufacturing costs	(xxx)
Variable	xx
Fixed	xx
Net Profit	xxx

**Step 1: Calculation of the number of units
(it will be the same irrespective of method)**

Formula: Opening stock + Production – Sales = Closing stock

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Step 2: Identify the variable production costs and the fixed production costs:

From the question, identify the variable production costs and fixed production costs. Note that the split for the overheads were not given.

Variable production costs	November	December
Direct material	R70	R72
Direct labour	R25	R27
Overheads	R?	R?
	R?	R?

Fixed production costs	November	December
Overheads	R?	R?

We know that overheads will have a fixed portion and a variable portion as it is a semi-variable costs, but we have to use the high-low method to determine the split...

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Step 3: Draft the respective income statements

RECONCILIATION OF NET PROFITS

RECONCILIATION BETWEEN DIRECT AND ABSORPTION COSTING PROFITS

➢ The difference between direct and absorption costing **net profits** is equal to the **difference in opening and closing stock.**

Learning objective 3: **Reconcile the difference in net profit between the two methods**

With the recon – Make sure you know the **format** – start with your net profit according to the absorption costing method. Then also show the net profit according to the direct costing method.

Then show what this **difference** reflects : **The difference** between the opening stock & closing stock for both methods.

DIRECT & ABSORPTION COSTING

QUESTIONS

STANDARD COSTING

"Standard" = Norm, criteria used to measure excellence laid down to give a measure against which actual figures can be measured in order to identify variances and take corrective action.

Standard cost = calculated cost of a product at a particular production volume under a given set of conditions (pre-calculated costs)
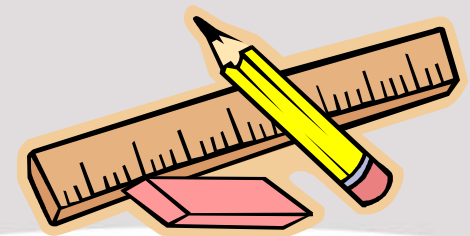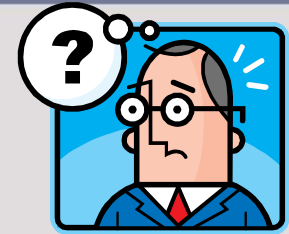
STANDARD COSTING

Variance = difference between **standard** costs and the **actual** costs of manufacturing the product on the one hand, and the difference between the **standard** selling price and the **actual** selling price (xAQ) on the other hand.

Variances may be *favourable* or *unfavourable*.
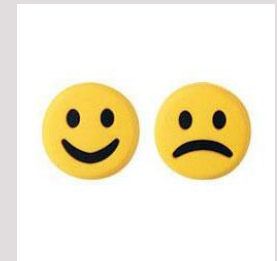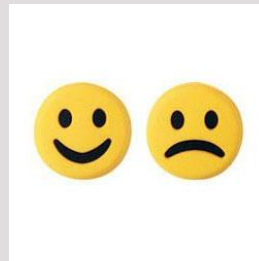
STANDARD COSTING

Variances for ACN203S:

*Direct material
Total variance;   Material purchase price variance;   Material quantity variance

*Direct labour
Total variance;   Labour rate variance;   Labour efficiency variance

*Variable manufacturing overheads - Variable with hours worked
Total variance;   Overhead rate variance;   Overhead efficiency variance

*Variable manufacturing overheads - Variable with production
Total variance;   Overhead rate variance;   Overhead efficiency variance

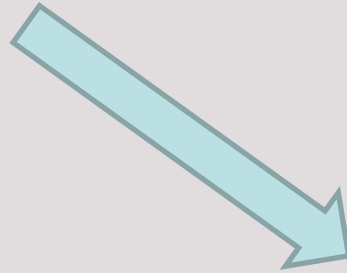***Variable sales and distribution overheads**
Total variance;   Expenditure variance;   Volume variance

*Sales price variance

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STANDARD COSTING

TOTAL VARIANCE =

A lot of students don't realise that the TOTAL variance as a whole (from actual to standard) is made up from two separate sub-variances

PRICE/RATE/EXPENDITURE VARIANCE   +   QUANTITY/EFFICIENCY/VOLUME VARIANCE

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STANDARD COSTING – NB principle

Example to illustrate principle:

Standard direct material (R7 per kg x 80,000kg)   R560,000
Actual direct material (R7.50 per kg x 78,000kg)   R585,000

Total variance   R25,000
(unfavourable)
This variance of R25,000 is made up of two "sub variances":

Price/ Rate variance: (78,000kg x R7.50) – (78,000kg x R7)
                    = R39,000 unfavourable

Volume/Quantity: (78,000kg x R7) – (80,000kg x R7)
                    = R14,000 favourable
The **principle** is thus:
R39,000 – R14,000 = R25,000 which is equal to the **total** variance
above

When calculating price/rate variances:
-quantity/hours remain unchanged.
-compare standard and actual costs.

When calculating quantity/efficiency variances:
-price/rate remain unchanged.
-compare actual and standard quantity/hours.

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STANDARD COSTING – NB principle

With all the **"expense"-variances** –
whenever the *actual cost is more
than the standard cost*, the variance is
unfavourable.
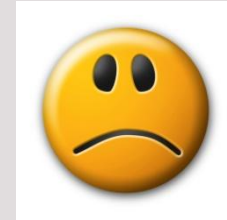
With an **"income"-variance** –
whenever the *actual price is more
than the standard price*, the variance is
favourable.

STANDARD COSTING – Framework

The framework that you can use for the expense variances:

Expenses

AC   AQxSP   SQ allowed
or   x AcProd
AQxAP   x SP

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Rate/price/spending	Quantity/efficiency
Total	

The framework that you can use for the income variances:

Income

AIncome
or

AQxAP

AQxSP

This leg will not be required from ACN203S students

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Selling price	Quantity
Total	

QUESTIONS