

School of Business and Economics

BACHELOR OF COMMERCE

DECEMBER 2015 ORDINARY EXAMINATIONS

HBC2401: MANAGEMENT ACCOUNTING

Instructions: Answer THREE questions only. Question ONE is compulsory. Time 2 Hours.

Question one

1a) Explain the three main forces for change in the role of the management accountant , according to Burns and Scapens. ( 6 marks)

b) Identify and explain any five problems with performance measurement in non-profit making organizations ( 5 marks)

c) Explain any three methods of transfer pricing ( 4 marks)

d) Because the over-65 population will be growing more rapidly in the next few decades, health –care spending is expected to increase significantly in the coming decades. The following table gives the projected health –care expenditure ( in billion shillings ) of Matopeni county from 2015 to 2020:

Year	2015	2016	2017	2018	2019	2020
Expenditures	2.00	2.17	2.34	2.50	2.69	2.90

Required: Estimate the expenditure (round to 2 decimal places) for the year 2025, using the following :

i) High-Low method ( 5 marks)

ii) Least squares /regression analysis. (10 marks)

Question two

a) Highlight the four main perspectives of a balanced score card ( 4 marks)

b) Mixers Ltd makes four products , the A,B,C and D .The company is planning its production mix for the following period. Relevant data is given below:

	A	B	C	D
Selling price per unit (sh)	19	25	40	50
Overheads per unit (sh)	2	5	3	4
Direct labour cost per unit (sh)	4	7	15	20
Material cost per unit (sh)	9	9	15	16
Maximum demand (units)	1,000	5,000	4,000	2,000

Labour is paid at sh 6 per hour and labour hours are limited to 12,000 hours in the period. Fixed costs are sh 20,000.

Required:

Determine the optimal production mix and profit for the period (16 marks)

Question three

a) Explain any five assumptions underlying CVP Analysis ( 5 marks)

b) Denno Ltd sells three products, K,L and M in the ratio of 3: 2: 1 respectively.

The company's management wants to estimate the BEP for the next month.The unit sales prices and variable costs are given as below:

Product	K	L	M
Selling price (sh)	50	70	40
Variable cost per unit(sh)	30	40	20

The company's overall fixed costs are sh 490,000 per month.

Required:

- i) Company's BEP( in sh) ( 8 marks)
- ii) BEP (in sh) for each of the three products ( 3 marks)
- iii) Forecasted product income statement at BEP ( 5 marks)

**Question four**

- a) Describe four distinct features of process costing ( 4 marks)
- b) Explain the concept of Equivalent units in process costing ( 2 marks)
- c) For process 1 , in JJ Ltd, the following information was is relevant for the month of June 2016:  
 material costs : (5,000 units) sh 40,000  
 Labour cost: sh32,200  
 Overhead : sh 22,000  
 Output:4,000 fully-completed units ,transferred to next process.  
 1,000 units in WIP and percentage of completion: materials 100%,labour 60% overheads 40%  
 There were no opening WIP.

**Required:**

- i) Statement of equivalent production (5 marks)
- ii) Statement of evaluation ( 5 marks)
- iii) Process 1 account ( 4 marks)

**Question five**

A chemical manufacturing company makes a detergent from two component material, namely P and N .  
 The material standard and actual inputs and rates are as given below;

Name of material	Standard		Actual	
	Kgs	Shs	kgs	Shs
P	8,000	10.5	7,500	12.0
N	4,000	21.5	6,300	23.0

**Required:** For each material compute:

- a) Revised standard quantity ( 4 marks)
- b) Material price variance (4 marks)
- c) Material usage variance ( 4 marks)
- d) Material mix variance ( 4 marks)
- e) Material yield variance ( 4 marks)

## Bachelor of commerce

### Hbc 2401 management accounting :December 2016 Examination

#### Marking scheme

#### Question one

a) Three forces for change in the role of the management accountant (Burns and Scapens)

i) **Technology:**

- The outputs from IT system were used to prepare financial reports to management and only a few people controlled input data ,especially in accounts.
- The management accountant now acts as another user of the system ,interrogating the MIS to produce management reports based on data input by other departments.
- Change in quality and quantity of information technology ie IT systems allow users across the organization to input data and run reports giving the type of analysis once only provided by the management accountant.

ii)**Management structure .**

- There has been a shift in the responsibility of budgeting from the centre to operational management due to organizational demergers and delayering of their chain of command whilst increasing employee empowerment.
- Operational managers must have a knowledge of budgeting and cost control, they are accountable on their own and their performance must be measured(based on a number of performance indicators).
- The management accountant now has a role as a reporter to senior management and is expected to produce a financial report which is known to management.

iii)**Competition:**

- The move from financial accounting to a more commercial orientation can be seen to be a consequence of the need to respond to competition and deploy a more strategic focus.
- The focus now is no longer short-termism but on commercial orientation-recognition of the importance of future earning capacity of the business rather than just profit in the current period
- looking at arrange of performance measures to review performance as strategic measures for future profitability .However, a return to short-termism may occur if economic conditions begin to deteriorate.

iv)**Corporate trends and organizational structure:**

- The creation of business networks, alliances and relationships has also affected the role of accountants
- they have to adapt to new organizational forms involving sharing of information ,cooperation and flexibility.

Specific Areas include : Collaborations in research and development, linking up with suppliers in supply chain management, integrating elements of their information systems to support these links.

## **b) Methods of transfer pricing**

**i)Market price based:** These are based on the listed price of similar products or services, the actual price the supplying division sells the intermediate product to external market and prices offer by competitors. If a perfectly competitive market exists for the product , then the market price is the best transfer.

ii)Marginal cost transfer price

Usually approximated by short-run variable costs(direct costs plus variable indirect costs)

iii)Full transfer price

Represent the sum of the cost of all resources committed to a product /service in the long-run(may add markup on full cost)

**iv)Cost plus a markup transfer price:** This is where a markup is loaded on the total cost to enable the supplying division earn a profit on interdivisional transfers. The following points may be noted regarding this transfer price. The producer calculates the cost of making a unit of output, they may add on a margin to guarantee some profit.

**v)Negotiated transfer prices:** This is where transfer prices are negotiated between managers of supplying and receiving divisions using market prices and marginal or full costs as bases for negotiations.

## **c) Problems with performance measurement in county governments (not-for –profit organizations)**

i) **Multiple objectives :** It is impossible to identify an overriding objective.

ii) **Measuring outputs:** outputs are seldom measured in away that is generally agreed to be meaningful; data collection can also be problematic. Eg good exam results are not only a measure of quality teaching; unreported crimes are not included in data to measure performance of a police force; women delivering in homes rather than hospitals affect planning for maternity care and related performance in service delivery

iii) **Lack of profit motive:** Indicators such as ROI and RI cannot be used in organizations without profits or sales.

iv) **Nature of service provided:** Cost unit is difficult to define eg for a local fire service.

v) **Financial constraints:** More financial constraints exist in not-for –profit making organizations(Npmo) due to strict controls by central government eg on borrowing and financial procedures

**vi) Political, social and legal considerations:**

-Npmo are subject to strong political influences .County governments have to carry out national government policies as well as their own (possibly conflicting ) policies

-the public may have higher expectations of public sector organizations than commercial organizations eg a decision to close a local hospital in an effort tom save costs is likely to be less acceptable to the public than the closure of a factory for the same reason.

- the performance indicators of public sector organizations are subject to far more onerous legal requirements than those of private sector organizations
- npmos are likely to continue offering a range of services even if some are uneconomical whereas profit –making organizations are unlikely to continue offering services in the long-term when making negative contribution.

**Possible solutions to these problems:**

- Inputs: performance can be judged in terms of inputs.
- Judgement: Judgement can be made by experts in the particular npmo or by persons who fund the activity
- Comparisons: Benchmark with competitors or against each other or against the historical results of the predecessors eg among county governments
- Quantitative measures: unit measurements like “ cost per patient day or “cost of borrowing one library book ‘ can fairly easily be established to allow organizations to assess whether they are doing better or worse than their counterparts.

**Efficiency measurements of inputs and outputs**

i) where input is fixed : actual output/maximum output obtainable for a given input

ii) where output is fixed: Maximum input needed for a given output/actual input

iii) where input and output are both variable :

actual output/actual input

compared with

standard output/standard input

c) cost estimation of cost using high-low and linear regression (least –squares ) methods

X	y	x <sup>2</sup>	xy
0	2.00	0	0
1	2.17	1	2.17
2	2.34	4	4.68
3	2.50	9	7.50
4	2.69	16	10.76
5	2.90	25	14.50

$\Sigma x = 15$        $\Sigma y = 14.60$        $\Sigma x^2 = 55$        $\Sigma xy = 39.61$

Let t=0 correspond to 2015 and interval be 5 years:

**High –low method:**

Variable cost per unit(b)=2.90-0.9/(5-0)=0.18

At x=5, 2.90=a+0.18b; then a=2.90-0.18(5)=2.9-0.9=2

Hence the equation : y=2+0.18x.

Year 2025 , x=10. Then y=2+0.18(10)=3.8 .Expenditure is sh 3.8 billions

**Regression method(least –squares)**

$\Sigma y = an + b \Sigma x$

$\Sigma xy = a \Sigma x + b \Sigma x^2$

i) 14.60=6a+15b

ii) 39.61=15a+55b

Solving for a and b , a=1.989 and b=0.178

The regression equation is : y=1.989+0.178x

Year 2025, x=10

Y=1.989+0.178(10)=3.769

Expenditure is sh 3.77 billion

**Question two**

a) The balanced score card (bsc) (developed by Kaplan and Norton) approach emphasizes the need to provide management with a set of information which covers all relevant areas of performance in an objective and unbiased fashion

The bsc is a performance measurement and focuses on four different perspectives and uses financial and non-financial indicators which are outlined below:

- i) **Customers perspective** : Rank in customer surveys, market share, repeat order size ,level of complaints and Brand index
- ii) **Internal business perspective** : cycle time, unit cost, capacity utilization, order response time engineering efficiency ,
- ii) **Innovation and learning perspective**: leadership competence, training days per employee, quality improvement team participation
- iv) **Financial perspective**: economic profit, income from operations, working capital, operational cash flow, Inventory turns.

b) **Calculation of contribution per labour hour (labour is limiting factor)**

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
	<b>sh</b>	<b>sh</b>	<b>sh</b>	<b>sh</b>
Selling price per unit	19	25	40	50
Variable overheads per unit:				
Overheads per unit	2	5	3	4
Direct labour cost per unit	4	7	15	20
Material cost per unit	9	9	15	16
Total variable cost	15	21	33	40
Contribution per unit	4	4	7	10
Labour hours per unit	1	2	3	4
Contribution per labour hour (sh)	4	2	2.33	2.50
Ranking	<b>1</b>	<b>4</b>	<b>3</b>	<b>2</b>

**Optimal Production mix**

<b>Product</b>	<b>units</b>	<b>Hours required</b>	<b>Hours available</b>	<b>units</b>
A	1,000	1,000	1,000	1,000
D	2,000	8,000	8,000	2,000
C	4,000	12,000	3,000	1,000
	7,000	21,000	12,000	4,000

**Profit statement**

	<b>A</b>	<b>D</b>	<b>C</b>	<b>Total (sh)</b>
Units sales	1,000	2,000	1,000	
	<b>Sh</b>	<b>sh</b>	<b>sh</b>	
Contribution per unit	4	10	7	
Contribution	4,000	20,000	7,000	31,000
Fixed cost				<u>20,000</u>
Profit				<u>11,000</u>

- Maximum demand (units)      A 1,000, B 5,000 C, 4,000 D 2,000

**Question three**

a) Assumptions behind CVP Analysis

- Total cost can be separated into fixed cost and variable cost.
- Selling price per unit and variable cost per unit remain constant
- Sales vary proportionately with volume
- Variable costs change proportionately with volume
- Fixed costs do not change at all with volume.
- There are no closing stocks ie sales equal to production.

b) i) Denno Ltd

calculation of company Break even point (BEP)

				Total
Product	K	L	M	
Selling price (sh)	50	70	40	
Variable cost per unit(sh)	<u>30</u>	<u>40</u>	<u>20</u>	
Contribution per unit	<u>20</u>	<u>30</u>	<u>20</u>	
Sales mix	3	2	1	
Contribution margin per mix	60	60	20	140
Sales price per mix	150	140	40	330
Contribution margin per mix (cmpm)=140/330=14/33=0.424 (42.4%)				
Overall company Break -even point (sh) =Fixed cost/cmpm				
= sh 490,000/(14/33)=490,000 x33/14 =sh <b>1,155,000</b>				

iii) Calculation of BEP for each product:

BEP=company BEP X proportion of each product's sales price per mix

K : sh 1,155,000x 150/330=sh 525,000 ( 10,500 units)

L : sh 1,155,000 x 140/330=sh 490,000( 7,000 units)

M : sh 1,155,000 x 40/330=sh 140,000( 3,500 units)

Total sh 1,155,000

iii) Denno Ltd

Forecasted Income Statement at BEP

	K	L	M	Total (sh)
	Sh	sh	sh	
Sales	525,000	490,000	140,000	1,155,000
Variable costs	315,000	280,000	70,000	<u>665,000</u>
Contribution				490,000
Less: Fixed cost				( 490,000)
Net profit				<u>0</u>

Question four

Question four

a) **Process costing** : a method of costing where it is not possible to identify separate units of production or jobs ,usually because of the common nature of the production processes involved .It is used in industries such as oil refining, paper, food and drinks ,chemicals, textile etc.

Features of process costing:

- the output of one process becomes the input to the next until the finished product is made in the final process.
- The continuous nature of production in many processes means that there will be closing WIP which must be valued .
- There are often losses in the process due to spoilage, wastage ,evaporation etc.

- Output from production may be a single product, but there may also be a by-product(s) and or joint product(s).

b) The concept of Equivalent units: The concept of equivalent units is used when there are opening and closing work in progress (WIP). Equivalent units (EU) are defined as 'a notional quantity of completed units substituted for an actual quantity of in completed physical units in process, where the aggregate work content of the incomplete units is deemed to be equivalent to that of the substituted quantity of completed units'. The idea behind this concept is that a part-processed unit can be expressed as a proportion of a fully-completed unit. Thus, equivalent production represents the production of a process in terms of completed units. WIP at the end of an accounting period are converted into equivalent units (EU). Process costs are allocated to units of production on the basis of equivalent units.

c) i) **Statement of Equivalent Production**

	Output	Equivalent units		
		Materials	Labour	Overheads
completed	4,000	4000 (100%)	4,000	4,000
WIP	<u>1,000</u>	<u>1,000</u> (100%)	<u>600</u> (60%)	<u>400</u> (40%)
	<u>5,000</u>	<u>5,000</u>	<u>4,600</u>	<u>4,400</u>

ii) **Statement of Evaluation**

	sh	sh
<b>Completed</b> (finished) units: 4,000 units @sh 20		80,000
<b>WIP:</b>		
Material: 1,000 units @sh 8	8,000	
Labour : 600 units@ sh 7	4,200	
Overheads: 400 units@sh 5	<u>2,000</u>	<u>14,200</u>
		<u>94,200</u>

**Costs per unit : material sh 40,000/5,000 =sh 8.00**  
**Labour sh 32,200/4,600=sh 7.00**  
**Overheads sh 22,000/4,400=sh 5.00**

iii)

**Process 1 account**

Cost element	Units	Sh	Units	sh
Material	5,000	40,000	WIP 1,000	14,200
Conversion costs:				
Labour		32,200		
Overheads		<u>22,000</u>		
	<u>5,000</u>	<u>94,200</u>	Output 4,000	<u>80,000</u>
			<u>5,000</u>	<u>94,200</u>

### Question five

#### a) Revised standard quantities

Material	standard Quantity (kgs) (SQ)	Actual Quantity (AQ)	Revised standard Quantity (RSQ)
P	8,000	7,500	9,200
N	<u>4,000</u>	<u>6,300</u>	<u>4,600</u>
	<u>12,000</u>	<u>13,800</u>	<u>13,800</u>

$$\text{Revised standard quantity} = \frac{\text{Total weight of Actual mix}}{\text{Total weight of Standard mix}} \times \text{Standard quantity}$$

For P ; RSQ =  $13,800 \times 8,000 / 12,000 = 9,200$  kgs

N : RSQ =  $13,800 \times 4,000 / 12,000 = 4,600$  kgs. ( 4 marks)

#### b) Material price variance (MPV) = AQ(AP-SP)

For P: MPV =  $7,500(12 - 10.50) = \text{sh } 11,250\text{A}$

For N: MPV =  $6,300(23 - 21.50) = \text{sh } 9,450\text{A}$  ( 4 marks)

#### c) Material usage variances (MUV) = SP(AQ-SQ)

For P: MUV =  $10.50(7,500 - 8,000) = \text{sh } 5,250\text{F}$

For N : MUV =  $21.50(6,300 - 4,000) = \text{sh } 49,450\text{A}$  (4 marks)

#### d) Material mix variance(MV) = SP(AQ-RSQ)

For P: MV =  $10.50(7,500 - 9,200) = \text{sh } 17,850\text{F}$

For N: MV =  $21.50(6,300 - 4,600) = \text{sh } 36,550\text{A}$  ( 4 marks)

#### e) Material yield(MY) variance = SP(SQ-RSQ)

For P: MY =  $10.50(8,000 - 9,200) = \text{sh } 12,600\text{A}$

For N: MY =  $21.50(4,000 - 4,600) = \text{sh } 12,900\text{A}$  ( 4 marks)

**Supplementary examination for December 2016**

**Hbc 2401 management accounting**

**Question one**

- a) Distinguish between management accounting and financial accounting ( 10 marks)
- b) Explain how costs can be classified by element ( 4 marks)
- c) The social security wage(FICA) base ( in thousands of dollars) from 2003 to 2008 is given in the accompanying table :

Year,	2013	2014	2015	2016	2017	2018
<b>Wage base,y</b>	87	87.9	90.0	94.2	97.5	102.6

- a) Estimate the FICA wage base in 2022 using :
  - i)High –Low Method (6 marks)
  - ii)Regression(Least-squares ) analysis (10 marks)

**Question two**

- a) Explain the steps involved in the decision-process under conditions of uncertainty (6 marks)
- b) Panq Ltd sells three products P,N and Q .Management wants to estimate the company's Breakeven point (BEP) for the next year. Unit selling prices and variable costs for the three products are as follows:

<b>Product</b>		<b>P</b>	<b>N</b>	<b>Q</b>
Selling price	shs	10.00	15.00	8.00
Variable unit cost	shs	6.00	10.00	5.00

The sales mix is the ratio of 3 units of P to 2 units of N to 1 unit of Q .The company's composite fixed costs are shs 500,000 p.a.

**Required:**

- i) Determine the overall company BEP (in units and shs) ( 6 marks)
- ii) Calculate BEP (in units and shs) for each product (3marks)
- iii) Show forecasted product Income statement at BEP. (5 marks)

**Question three**

- a) Explain the concept of relevant costing (5marks)
- b) The following details are available regarding two products, K and M , produced by a company :

	<b>K</b>	<b>M</b>
<b>Per unit</b>	<b>shs</b>	<b>shs</b>
Direct materials	5	4
Direct labour	3	3
Variable production overheads	<u>2</u>	<u>1</u>
	<u>10</u>	<u>8</u>
Selling price	15	8
Direct labour hours per unit	4	2
Sales demand (units)	500	500

Fixed costs for the period amounted to shs 2,000. Direct labour hours available for the period are limited to 1,500 hours.

**Required :**

- i) Determine the optimum production plan ( 10 marks)
- ii) Prepare a profit statement for the period using the optimal production mix (5 marks)

**Question four**

- a)Explain four main causes of material yield variance ( 4 marks)
- b)Quality detergents Ltd makes a product, AL ,from two materials S and T.The standard prices and quantities are as follows:

	<b>S</b>	<b>T</b>
Price per kg	sh 2	sh 3
Kgs per unit of AL	10	5

In May 2015, 7,000 units of AL were produced by the company , with the following actual prices and quantities of materials used:

	<b>S</b>	<b>T</b>
Price per kg	sh 1.90	sh 2.80
Kgs used	72,000	38,000

**Required:**

- a) Material price and usage variance ( 8marks)
- b) Material mix and yield variance ( 8 marks)

**Question five**

a) Explain four features of process costing ( 4 marks)

b) For process A , in Vera Ltd, the following information was is relevant for the month of March 2015:

Material costs : (10,000 units) sh 80,000

Labour cost: sh64,400

Overhead : sh 44,000

Output: 8,000 fully-completed units ,transferred to next process.

2,000 units in WIP and percentage of completion: materials 100%,labour 60% overheads 40%

There were no opening WIP.

**Required:**

- i) Statement of equivalent production (5 marks)
- ii) Statement of cost (4 marks)
- iii) Statement of evaluation ( 3 marks)
- iv) Process 1 account (4 marks)

## HBC 2401 MANAGEMENT ACCOUNTING

### COURSE OUTLINE

**Course purpose:** The course intends to help the learners to management accounting techniques and concepts for use in planning, decision making and control.

**Learning outcomes:**

At the end of the course, learner should be able to:

- 1) Analyze internal financial statements for decision making
- 2) Understand major skills of converting accounting data into information for decision making.
- 3) Measure and use data about the cost of products and services within an organization

Week	Topic	sub-topic	Remarks
Wk 1&2	Nature & scope of Management Accounting	<ul style="list-style-type: none"> <li>• Objectives of management accounting</li> <li>• Scope of Management accounting</li> <li>• Cost classification</li> <li>• Cost estimation</li> </ul>	
Wk 3,4 & 5	Process costing	<ul style="list-style-type: none"> <li>• The concept of equivalent units</li> <li>• FIFO and Average cost valuations for WIP</li> <li>• Accounting for joint and by-products</li> </ul>	Assign 1
Wk 6	Cost-profit-volume(CVP) Analysis	<ul style="list-style-type: none"> <li>• Modifications of the basic CVP model</li> <li>• Multiproduct CVP Analysis</li> <li>• CVP under uncertainty</li> </ul>	
Wk 7 & 8	Relevant costing and decision making	<ul style="list-style-type: none"> <li>• Relevant costs</li> <li>• Make or buy, special order decisions,</li> <li>• choice of product mix decision</li> <li>• dropping product or segment decisions</li> </ul>	CAT1
Wk 9,10	Performance measurement and evaluation	<ul style="list-style-type: none"> <li>• Decentralization</li> <li>• Responsibility accounting</li> <li>• Pricing decisions</li> <li>• Transfer pricing</li> <li>• Balanced score card</li> </ul>	Assign1
Wk 11	Strategic management accounting	<ul style="list-style-type: none"> <li>• Target costing</li> <li>• Kaizen costing</li> <li>• Benchmarking</li> </ul>	

		<ul style="list-style-type: none"> <li>• Back-flush and throughput accounting</li> </ul>	
Wk 12&13	Advanced Variance Analysis	<ul style="list-style-type: none"> <li>• Material mix &amp; yield variances</li> <li>• Sales Variances</li> <li>• Operating statements</li> <li>• Investigation of variances</li> </ul>	CAT 2
Wk 14	Revision and Exams		

**Teaching methodology:** Lectures, tutorials, case studies, individual & group presentations

**Instructional materials:** Whiteboard, markers, tablets, smart board, LCD projector & computers, Flipcharts

**Course evaluation**

CATs/Assignments/presentation	30%
Final examination	70%

**Course textbooks**

1 Harrison, Noreen and Brewer (2014), Managerial Accounting , ISBN 978-0-0780-25631-20-3

2 Lucey, T (2005), Management Accounting, Thomson Learning , London

3 Drury, C (2005), Management and Cost Accounting, Thomson Learning, London.

4 Reeve, J, Warren, C.S, Duchac, J.E (2012) , Principles of Accounting, 24<sup>th</sup> Edition, South-Western, Cengage Learning

5 Garrison, R.H, Noreen , E.W. Brewer, P.H, Mardini, R.U (2014), Managerial accounting, 2<sup>nd</sup> Edition. Mc Graw -Hill

**Grading**

Scores	Grade
70% and above-	A
60% and below 69%	B
50% and below 59%	C
40% and below 49%	D
40% and below -	E