NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF MANAGEMENT SCIENCES

DEPARTMENT OF ACCOUNTING, ECONOMICS & FINANCE

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DURATION: 3 HOURS	MARKS: 100

SECOND OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER (S)	H. Namwandi, E. Kangootui and A. Makosa
MODERATOR:	K. Boamah

INSTRUCTIONS

1. This question paper is made up of five (5) questions.
2. Answer All the questions and in blue or black ink.
3. Start each question on a new page in your answer booklet and show all your workings.
4. Questions relating to this paper may be raised in the initial 30 minutes after the start of the paper. Thereafter, candidates must use their initiative to deal with any perceived error or ambiguities and any assumption made by the candidate should be clearly stated.

PERMISSIBLE MATERIALS

Non-programmable calculator

THIS QUESTION PAPER CONSISTS OF 7 PAGES (Excluding this front page)

Question 1 **(25 Marks)**

The Windhoek Trust is one of the largest trusts in Namibia. Windhoek Trust owns a private hospital that specialises with people suffering from anxiety. The pharmaceutical unit of the Windhoek Trust has recently developed a medication known for calming anxiety that they plan to supply to the hospital on commercial basis and if the drug is successful at the hospital, Windhoek Trust would start producing it for both local and international markets. They have planned to name this medication, 'the Stabilizer.'

Windhoek Trust uses a standard costing system for better control of costs and performance evaluation. The following information relates to the production of the Stabilizer.

The Stabilizer requires three ingredients, A, B and C which should be mixed in correct proportions as follows:

- Ingredient A – 10%
- Ingredient B – 30%
- Ingredient C = 60%.

The Stabilizer is produced and packaged into 1kg packets. However, Windhoek Trust is a very flexible customer focussed business that strives to deliver above customer expectations. It has been envisaged that Windhoek Trust will in future be able to produce and sell different quantities depending on the customers' requests.

The following inputs are required to produce 1 kg of the Stabilizer:

Materials

Ingredient	**Quantity in grams (g)**	**Standard price**
A	120 g	N$100 per g
B	360 g	N$60 per g
C	720 g	N$20 per g

Labour

	Time Taken	**Standard Wage Rate**
Scientists	20 hours	N$200 per hour
Technicians	40 hours	N$150 per hour

The Stabilizer is normally sold for a standard price of N$60 000 and the standard output is 50kg per month. The medicine is perishable and as such, the Windhoek Trust does not keep any inventory of the Stabilizer. This means that production and sales level are always the same every month. Nevertheless, Windhoek Trust keeps some inventory of the individual ingredients they use to make the Stabilizer.

The following relates to the actual results for last month:

The pharmaceutical unit produced and sold 54kg of the Stabilizer and received a sales revenue of N$3 294 000. The purchases and inventories of the three ingredients were as follows:

Ingredients (g)	A	B	C
Opening inventory	8 000	9 000	12 000
Purchases	5 000	21 000	39 000
Closing inventory	6 000	10 000	11 000
Cost of purchases per g (note all materials were bought at these prices)	N$105	N$70	N$18

Labour	Scientists	Technicians
Hours worked	1 000 hrs	2 300 hrs
Total labour cost	N$220 000	N$368 000

It is company policy to calculate material price variance base on materials used as opposed to materials purchased. The impact of manufacturing overheads is minimal and therefore overhead cost can be ignored.

	Requirement	25
a)	Prepare a standard cost card for one gram of the Stabilizer.	2
b)	Calculate the following variances: i) materials price variances; (4) ii) materials mix and yield variances; (6) iii) labour rate variances; (2) iv) labour mix and yield variances; (4) v) sales price variance. (2)	18
c)	Briefly discuss the applicability of standard costing in the public sector. Your answer should outline the advantage and disadvantages of applying standard costing in the public sector.	5

Question 2 **(25 marks)**

DAS is an insurance company that provides insurance and other financial services to many large companies in South Africa. Due to an increase in clientele DAS is becoming relatively pressured for time. As a result of tight deadlines, DAS requires its employees to work many hours of overtime.

DAS is considering opening up a coffee shop on its premises so as to provide a place for its employees to enjoy a good cup of coffee since they will be spending so much time at work.

DAS is currently deciding between two options. DAS can either open the coffee shop themselves, or they can outsource the function to "Le Café" enterprise.

If DAS opens the coffee shop, furniture and fittings (including chairs, tables, counters etc.) will have to be purchased at a total cost of N$50 000. These will be depreciated over 5 years. A cash register costing N$6 000 will also have to be bought.

DAS will have to employ two staff members to work in the coffee shop. These employees will have to be trained to use the equipment at a cost of N$500 per staff member. Thereafter the two employees will be paid N$25 per hour. The coffee shop will be open 6 days a week from 7 a.m. to 5 p.m. (Assume a 52 week year.)

Alternatively, DAS could use two staff members that are currently in the employ of the company. These employees are working as cleaning staff but could be moved to the coffee shop so as to add more value to the company. These employees are currently each paid N$5 500 per month. If they are used in the coffee shop they will have to be trained at a cost of N$500 per employee and they will continue to be paid their salary.

The floor space that is intended to be used for the coffee shop is currently being rented out to XYZ Printers, a printing company that uses the space for storage. Rental of N$1 500 per month is being paid for this space.

The company expects to pay water and electricity in addition to what they currently pay. It is estimated that the fixed portion of the water and electricity bill will increase by N$1 000 per year as soon as the number of cups of coffee sold exceeds 100 000 per annum.

The information below refers to the water and electricity cost:

Number cups of coffee	N$
110 000	15 000
80 000	12 000
50 000	10 000

DAS will have to buy coffee at a cost of N$30 per bag. It is estimated that 500 000 cups of coffee will be sold yearly at a charge of N$8 per cup. They will use 40 000 bags of coffee a year.

Outsourcing: "Le Café"

DAS will earn rental of N$2 000 per month from "Le Café" for the use of the premises, as well as 10% of all turnover earned by "Le Café". "Le Café" will sell coffee at N$9 per cup and the demand is expected to be the same as if DAS opened the shop themselves. DAS will however have to pay Le Café N$10 000 upfront for the use of their trademark. "Le Café" will see to it that the coffee shop is set up with their trade features. They will stock the shop with coffee and they will fully staff the coffee shop.

"Le Café" will pay their staff members N$50 000 per annum. It is estimated that the maintenance cost of the coffee machines will be N$2 000 per annum payable by DAS irrespective of the option chosen.

Required:

2.1 **Calculate** whether DAS should open the coffee shop themselves or outsource it to "Le Café". (Show your calculations.) **(20)**

2.2 **Discuss** other qualitative factors that DAS should consider before making the decision. **(5)**

Question 3 **(25 Marks)**

Richie Rich is the CFO of a mining and exploration company RR. The company is involved in performing drilling and excavation services for a number of large South African mines including the likes of Imps, Angs and Harms. The year end of the company is 31 March.

The company invoices large sums of money during the financial year and good cash management is an essential part of managing the company's finances.

Richie Rich is a great businessman. He, however, has difficulty in preparing budgets which are essential to monitor expected cash flows. Richie Rich wants to undertake a large amount of projects in the next financial year which will require a large amount of capital expenditure and a budget thus has to be prepared to ensure that there is sufficient cash for these purposes.

Richie Rich has approached you for assistance in preparing the cash budget for the next financial year and has presented you with the following information:

All contracts with the mines are on an account basis due to the large sums of money involved.

Estimated sales over the next 4 Quarters of the 2014 financial year end are:

	Q1	Q2	Q3	Q4
	N$'000	N$'000	N$'000	N$'000
Apr – Jun	90 000			
Jul – Sep		90 000		
Oct – Dec			120 000	
Jan – Mar				70 000

Clients are expected to settle 1/3 of the contract as up-front payment in the quarter that the sale is made, the remaining 2/3 will be received in the following quarter when all work is expected to be completed.

Salaries and wages are estimated at N$6,5 million per month and are paid in cash every month. Production bonuses are paid in December and are estimated at 2 x monthly salary charges.

The company uses expensive TLB's and other excavation equipment which is very expensive. Machines have a useful life of 5 years. Depreciation will be written off on these machines. At 31 March 2008 accumulated depreciation represents inter alia 80% of the cost of one of the assets. At the end of their useful lives each machine can be realised for N$10 000 000 cash.

Costs to operate these machines including diesel and oil is N$30 000 000 per quarter.

The main material that is used in the services provided to the mines is metal rods. These items are purchased cash on delivery. The Q1 and Q2 expected cost is N$3 million per quarter. This cost is expected to increase by 10% in Q3. The Q4 cost is budgeted as 10% less then that of Q2.

All other materials used on the mines are purchased on credit and must be paid in the quarter following the one in which they are purchased, to retain cash in the company for as long as possible, but without damaging the company's reputation for long overdue payments.

Estimated purchases of materials are:

	N$ '000
Q1	5 000
Q2	5 000
Q3	8 000
Q4	4 000

Extracts from the Balance sheet at 31 March 2013:

	N$'000
Cash	3 000
Debtors	46 666
Fixed Assets – cost	300 000
Accumulated Depreciation	150 000
Trade Creditors	100 000

The company wishes to maintain a cash balance of N$3 000 000 at the end of each quarter and will borrow funds from ABC Bank to facilitate this. The funds will be borrowed at the beginning of the quarter and interest of 13,5% per quarter will be paid at the beginning of the next quarter on the balance outstanding. No capital will be repaid in the budgeted financial year.

Opening creditors will be repaid 50% in Q1 with a 10% discount on that and the balance to be repaid in Q2.

Vending Machines:

Richie Rich is planning on purchasing vending machines to be placed on the sites of his mine workers so that they can drink coffee and have a snack on site to increase productivity.

RR has two choices in this regard. They can rent or purchase the machines.

Sales are expected to increase by 10% as a result of the machines.

If the machines are purchased, the cost will amount to N$1 million rand. The machines will have to be maintained at a cost of N$10 000 per month.

Under the lease the maintenance will be done by the lessor and total monthly lease cost is N$60 000 per month.

REQUIRED:

(a) Describe and explain six purposes of budgets. (6)

(b) Assist Richie Rich in preparing the cash budget for the financial year ending 31 March 2014. (Ignore the effects of the vending machines.) (18)

Question 4 **(15 Marks)**

AC (Pty) Ltd manufactures two components that are used in computers. The company has a team of workers responsible for the manufacture of the components. The team first had to learn how to manufacture the parts and over two months a learning effect was observed. A learning curve for Component 1 was 95%. The learning effect for both components is expected to last for the first 32 units manufactured.

Information about the two components for the first two months is as follows:

	Component 1	**Component 2**
Units manufactured to date	4	16
Total minutes worked by the team	3620	?
Normal labour rate per person per hour	N$30	N$30
Total material cost	N$400 000	N$400 000
Total overheads	N$500 000	N$900 000
Selling price per unit	N$250 000	N$110 000

- The team worked 2858.4 hours to manufacture two units of Component 1 and 5145.12 hours to manufacture four units of Component 2.
- The total fixed overhead for the first two months was N$300 000 of which 60% is attributable to Component 2.
- Variable costs are variable to the number of units manufactured.
- All units that were manufactured were sold in the two months.
- Negotiations took place and the labour rate increased 20% with immediate effect.
- The material price increased by 15%. Fixed costs and manufacturing overheads are expected to remain the same.

Required:

4.1 Calculate the actual labour cost for the fourth unit of Component 1 that is manufactured. (2 marks)

4.2 Calculate the marginal income of the first four units of Component 1. (5 marks)

4.3 Calculate the expected net profit of the next 32 units of Component 2, clearly showing the marginal income. (8 marks)

Question 5 **(10 Marks)**

PTP produces two products from different combinations of the same resources. Details of the selling price and costs per unit for each product are shown below:

	Product E	Product M
Selling price	N$175	N$125
Material A (N$12 per kg)	N$60	N$24
Material B (N$5 per kg)	N$10	N$15
Labour (N$20 per hour)	N$40	N$20
Variable overhead (N$7 per machine hour)	N$14	N$28

The fixed costs of the company are N$50 000 per month. PTP aims to maximise profits from production and sales. The production plan for June is currently under consideration.
The following resources are available in June:

Material A	4 800kg
Material B	3 900kg
Labour	2 500 hours
Machine hours	5 000 hours

Required:

5.1 Identify the objective function and the constraints to be used in a linear programming model to determine the optimum production plan for June. (3 marks)

5.2 The solution to the linear programming model shows that the only binding constraints in June are those for Material A and Material B. Produce, using simultaneous equations, the optimum production plan and resulting profit for June. (**You are NOT required to draw or sketch a graph.**) (5 marks)

5.3 Based on the optimal production plan for June, the management accountant at PTP has determined that the shadow price for Material A is N$7 per kg. Explain the meaning of the shadow price for Material A. (2 marks)

THE END