



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF COMMERCE, HUMAN SCIENCES AND EDUCATION

DEPARTMENT OF ACCOUNTING, ECONOMICS AND FINANCE

QUALIFICATION: BACHELOR OF ACCOUNTING	
QUALIFICATION CODE: 07BOAC	LEVEL: 7
COURSE CODE: GMA711S	COURSE NAME: MANAGEMENT ACCOUNTING 310
SESSION: JUNE 2022	PAPER: THEORY AND CALCULATIONS
DURATION: 3 HOURS	MARKS: 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
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MODERATOR:	A. Makosa

INSTRUCTIONS
<ol style="list-style-type: none">1. Answer ALL the questions in blue or black ink only. NO PENCIL.2. Start each question on a new page, number the answers correctly and clearly.3. Write clearly, neatly and show all your workings/assumptions.4. Work with four (4) decimal places in all your calculations and only round off only final answers to two (2) decimal places unless otherwise stated.5. Questions relating to this examination may be raised in the initial 30 minutes after the start of the examination. Thereafter, candidates must use their initiative to deal with any perceived error or ambiguities and any assumptions made by the candidate should be clearly stated.

PERMISSIBLE MATERIALS

1. Silent, non-programmable calculators

THIS QUESTION PAPER CONSISTS OF 5 PAGES (excluding this front page and tables)

QUESTION 1**[25 MARKS]**

A company is considering the launch of a new 5G mobile phone. Experience from the sale of previous models has shown that the expected life of the new model is three years and life cycle sales will total 25 million units. Sales volumes over the life cycle of the product will follow the pattern shown below.

- Year 1 - 30%
- Year 2 - 40%
- Year 3 - 30%

The company's research and development division, which has an annual budget of N\$35 million has developed a prototype of the 5G phone. A further investment of N\$600 million in a new manufacturing facility will be required at the start of year 1 to put the new model into production. The new model will be marketed at a premium price of N\$300 per unit throughout the life of the model.

The 5G model will be produced exclusively in the new manufacturing facility. The total fixed manufacturing costs will be N\$300 million per year excluding depreciation. It is also anticipated that a further N\$150 million will be spent in each of years 1 and 2 and N\$100 million in year 3, on further development and marketing of the new model. The variable cost per unit will be N\$125 and this is expected to remain the same throughout the life of the model. It is estimated that the launch of the new model will result in a reduction in sales of the current 4G model of 2 million units in the first year after which there will no longer be a market for the 4G model. It was never anticipated that there would be a market for the 4G model after this period. The contribution per unit of the 4G model is N\$100.

The company's financial director has provided the following taxation information:

Wear and tear allowances:

- Tax depreciation is accounted for on a straight-line method.
- Taxation rate: 32%, half of the tax is payable in the year in which it arises, the balance is paid in the following year.
- Any taxable losses resulting from this investment can be set against profits made by the company's other business activities. The company uses a cost of capital of 8% per annum to evaluate projects of this type.

REQUIRED		MARKS
a)	Calculate the Net Present Value (NPV) of the project including year 4 (work with whole numbers in ALL your calculations).	22
b)	Highlight any three (3) advantages of NPV	3

QUESTION 2**[25 MARKS]**

Perfect Tyre Suppliers is a newly formed locally owned company seeking to enter the motor accessory markets where it will supply two types of tyres namely: Michelin and Tornado. The demand for tyres will fluctuate depending on the state of the economy. It will employ 20 employees at its manufacturing plant performing different functions. The Managing Director recently attended an international conference on risk management. During the conference it was stated how the statistical concept of standard deviation can be used to measure risk. He has therefore contracted you as the management accountant with the aim of exploring how the use of standard deviation can help him make decisions pertaining to the risk profile of each tyre type.

The following probability distribution has been provided by the managing director based on his industry experience:

Economic state	Probability (%)
Super boom	30
Boom	45
Recession	25

The expected return for the Michelin tyre is 15% during super boom, 25% in a boom economy and -10% in a recession. The tornado tyre has an expected return of 20% in a super boom economy, 10% in a boom economy and -15% during recession. In order to ensure that the above probability distribution is as close as accurate or perfect, the Managing Director is thinking of hiring a market specialist to provide further information on the market of tyres. The market specialist will charge 2% higher compared to the cost incurred by Perfect Tyres to obtain the current projection.

REQUIRED		MARKS
a)	Evaluate whether Perfect Tyre Suppliers should hire the market specialist or not. Support your answer with appropriate calculations	6
b)	Use the mean-variance analysis to recommend which type of tyres Perfect Tyre Suppliers should supply. Provide detailed analysis of your recommendation.	19

QUESTION 3**[25 MARKS]**

Netflix is the world's leading streaming entertainment service with over 209 million subscribers in over 190 countries (July 2021). Netflix started in 1997 as a DVD mail rental business. In 2007, the company shifted its business model and decided to go digital with the introduction of streaming media. Customers can now access a wide range of movies, TV series, and original Netflix content for an affordable, no-commitment monthly fee.

Netflix is considering launching a new, innovative product onto the Namibian market and is trying to decide on the right launch price for the product. The product's expected life is three years. Given the high level of costs which have been incurred in developing the product, Netflix wants to ensure that it sets its price at the right level and has therefore consulted a market research company to help it do this. The research, which relates to similar but not identical products launched by other companies, has revealed that at a price of N\$60, annual demand would be expected to be 250 000 units. However, for every N\$2 increase in selling price, demand would be expected to fall by 2 000 units and for every N\$2 decrease in selling price, demand would be expected to increase by 2 000 units.

A forecast of the annual production costs which would be incurred by Netflix in relation to the new product are as follows:

Annual production (units)	200 000	250 000	300 000	350 000
	N\$	N\$	N\$	N\$
Direct material	2 400 000	3 000 000	3 600 000	4 200 000
Direct labour	1 200 000	1 500 000	1 800 000	2 100 000
Overheads	1 400 000	1 550 000	1 700 000	1 850 000

REQUIRED		MARKS
a)	Determine the equation for the demand function (that is, the price as a function of quantity demanded. If $P = a - bx$, then $MR = a - 2bx$)	4
b)	Determine the Marginal Cost (MC)	5
c)	Calculate the optimum price	5
d)	Compute the maximum profit	8
e)	Explain what is meant by price elasticity of demand	3

QUESTION 4**[25 MARKS]**

The Portable Garage Co (PGC) is a company specialising in the manufacture and sale of a range of products for motorists. It is split into two divisions: the battery division (Division B) and the adaptor division (Division A). Division B sells one product - portable battery chargers for motorists which can be attached to a car's own battery and used to start up the engine when the car's own battery fails. Division A sells adaptors which are used by customers to charge mobile devices and laptops by attaching them to the car's internal power source. Recently, Division B has upgraded its portable battery so it can also be used to rapidly charge mobile devices and laptops. The mobile device or laptop must be attached to the battery using a special adaptor which is supplied to the customer with the battery. Division B currently buys the adaptors from Division A, which also sells them externally to other companies.

The following data is available for both divisions:

Division B	
Selling price for each portable battery, including adaptor	N\$180
Costs per battery:	
Adaptor from Division A	N\$13
Other materials from external suppliers	N\$45
Labour costs	N\$35
Annual fixed overheads	N\$5 460 000
Annual production and sales of portable batteries (units)	150 000
Maximum annual market demand for portable batteries (units)	180 000

Division A	
Selling price per adaptor to Division B	N\$13
Selling price per adaptor to external customers	N\$15
Costs per adaptor:	
Materials	N\$3
Labour costs	N\$4
Annual fixed overheads	N\$2 200 000
Current annual production capacity and sales of adaptors - both internal and external sales (units)	350 000
Maximum annual external demand for adaptors (units)	200 000

In addition to the materials and labour costs above, Division A incurs a variable cost of N\$1 per adaptor for all adaptors it sells externally. Currently, Head Office's purchasing policy only allows Division B to purchase the adaptors from Division A, but Division A has refused to sell Division B any more than the current level of adaptors it supplies to it. The manager of Division B is unhappy. He has a special industry contact whom he could buy the adaptors from at exactly the same price charged by Division A if he were given the autonomy to purchase from outside the group. After discussions with both of the divisional managers and to ensure that

the managers are not demotivated, Head Office has now agreed to change the purchasing policy to allow Division B to buy externally, provided that it optimises the profits of the group as a whole.

REQUIRED		MARKS
a)	Identify and describe the THREE (3) types of transfer pricing	6
b)	Under the current transfer pricing system, prepare a profit statement showing the profit for each of the divisions and for the Portable Garage Co (PGC) as a whole. Your sales and costs figures should be split into external sales and inter-divisional transfers, where appropriate.	19

END OF EXAMINATION PAPER



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2022-05-09

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