

QUESTION 1

1.1 Ms Jessie Shange has been a loyal customer of ModaCom, a South African mobile communications company for six years. Jessie's most recent invoice is shown below:

ModaCom			
Tax Invoice			
Ms J. Shange		Account Number:	B8708158-7
111 Cresta Road		Cellular Number:	0867413211
CATO RIDGE		Invoice Number:	B87904326
3680		Invoice Date:	06/06/2024
		Due Date:	30/06/2024
Cellular Telephone Number: 0867413211 SHANGE			
Description	Amount (Excluding VAT)	VAT	Subtotal
Discounts			
Reduced Subscription	-198.80	-29.82	-228.62
Total Discounts	-198.80	-29.82	-228.62
Subscription Services			
10 GB (NEW) MBB 24 M disc TopUp Data	309.00	A	B
Bonus Data 3 GB	100.00	15.00	115.00
HSDPA Voice Tariff	0.00	0.00	0.00
VAS – Caller Identity Subscription	8.69	1.30	9.99
Total Subscription Services			C
This invoice amount			251.72
Should you have any queries regarding the contents of your bill, please contact ModaCom Customer Services. Please ensure that payment is made via EFT or Direct Debit. ModaCom Registered office. P O Box 12306, Johannesburg, Gauteng.			

Use the information above to answer the questions that follow:

1.1.1 State Jessie Shange's telephone number.

(2)

1.1.2 On which date was the invoice issued?

(2)

1.1.3 What is the total amount of data that has been allocated to Jessy for this month? Give your answer in Gigabytes (GB).

(2)

1.1.4 Calculate the correct values on the invoice for A, B and C. Write your answer for each letter in the space provided below.

A: _____

(3)

B: _____

(2)

C: _____

(2)

1.1.5 Determine, as a percentage, Jessy's total discount of the total subscription services.

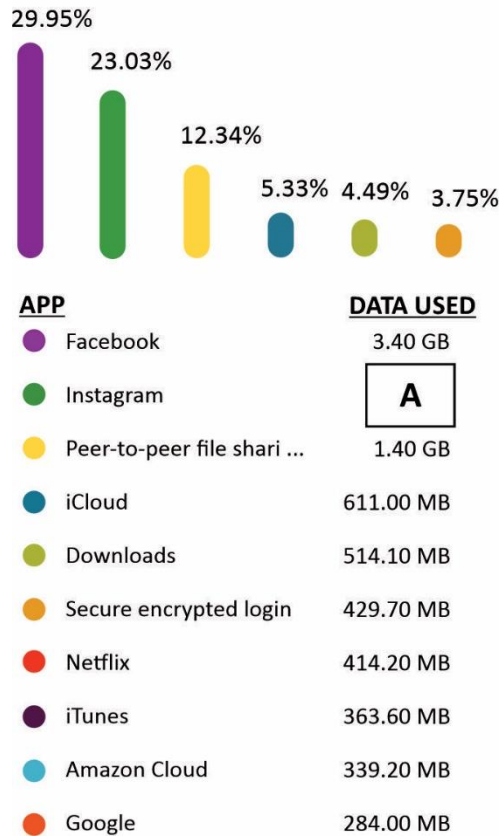
(3)

1.1.6 Identify all the methods of payment stipulated on this invoice.

(2)

1.2 Jessy feels that she is using far too much data and accesses her detailed data usage, showing which Apps were used and the amount of data used per app, for the past 30 days. According to the app, she has used a total of 11.2 GB.

Percentage of Data Used



1.2.1 Determine how many gigabytes (GB) of data Jessy used on Instagram. (Indicated with an A on the table.)

(2)

1.2.2 State which social media platform Jessy used the most data on.

(2)

1.2.3 State if the data represented above is categorical or continuous.

(2)

1.2.4 Using your answer to Question 1.1.3, determine how much data Jessy has left for the month.

(2)

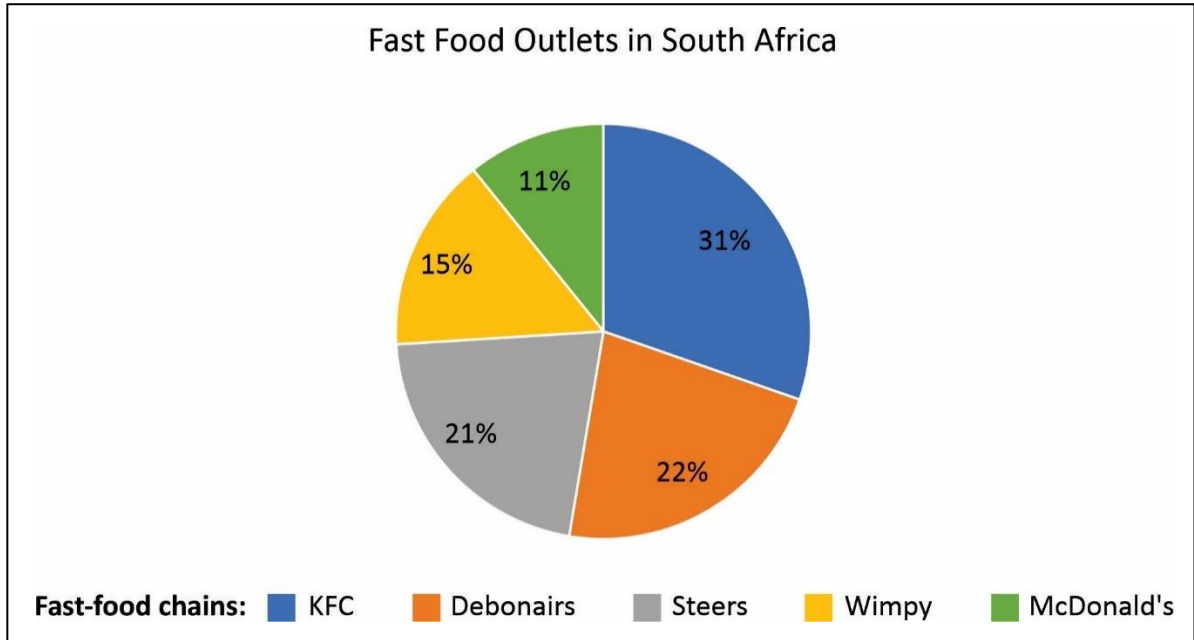
1.3 What is the difference in data used between iCloud and Amazon Cloud?

(2)

[28]

QUESTION 2

2.1 Fast food is a huge business in South Africa. The pie chart below contains data on the number of fast-food outlets (stores) of the top 5 fast-food chains in South Africa. There are a total of **3 047** fast-food outlets in this country.



[Source: <<https://businesstech.co.za/news/business/704937/14-biggest-fast-food-franchises-in-south-africa/>>]

Use the pie chart to answer the questions that follow:

2.1.1 State which fast-food chain is most popular in South Africa.

(2)

2.1.2 In your opinion, suggest a reason why the fast-food chain sales may be increasing.

(2)

2.1.3 Write, as a ratio in its simplest form, the percentage of Steers to Wimpy fast-food outlets.

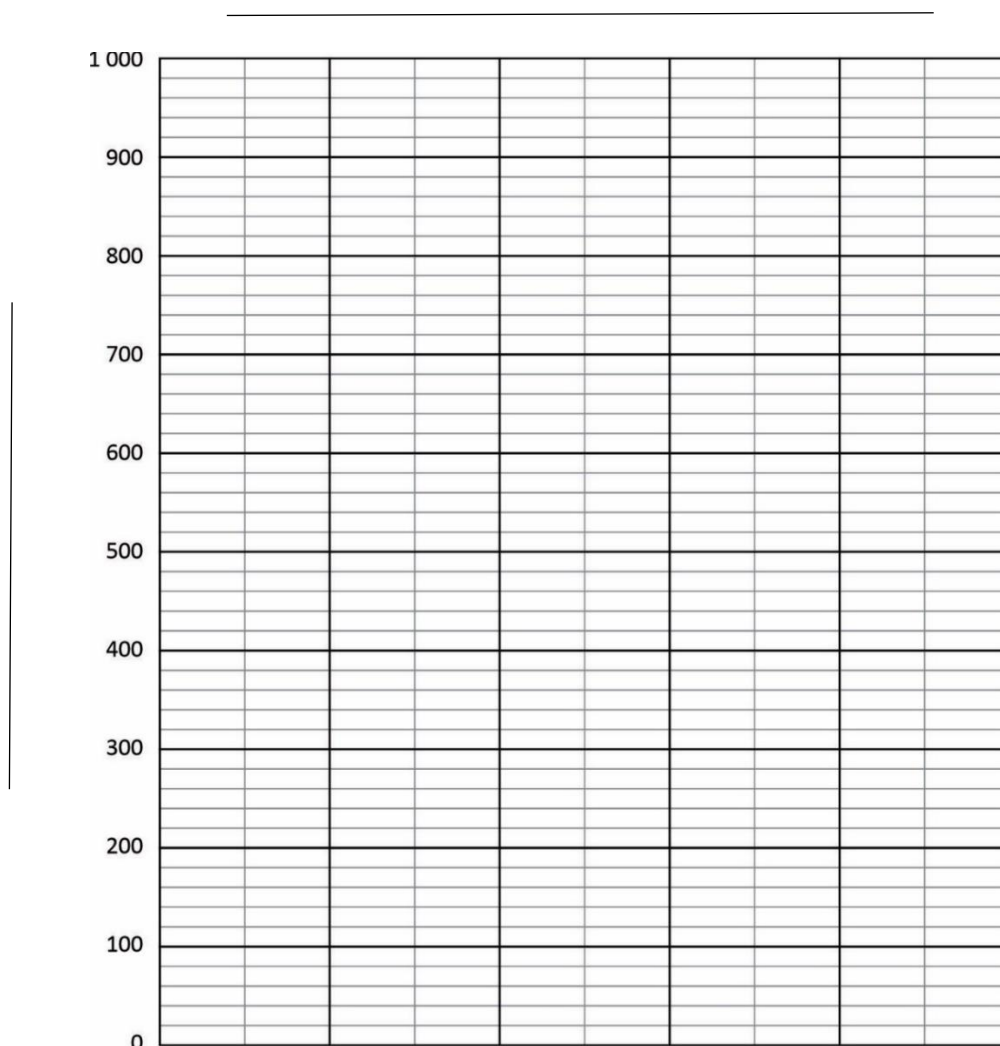
(2)

2.1.4 Use the data provided in the pie chart to complete the table below, showing the **number of fast-food outlets** of each of the five fast-food chains.

Food chain	Calculation	Number of fast-food outlets in South Africa
KFC		
Debonairs		
Steers		
Wimpy		
McDonald's		
TOTAL:		

(5)

2.1.5 Use the information in the table above to draw an appropriate graph on the grid below depicting the various fast-food chains and their number of fast-food outlets. Provide a suitable heading and label the axes.



(6)

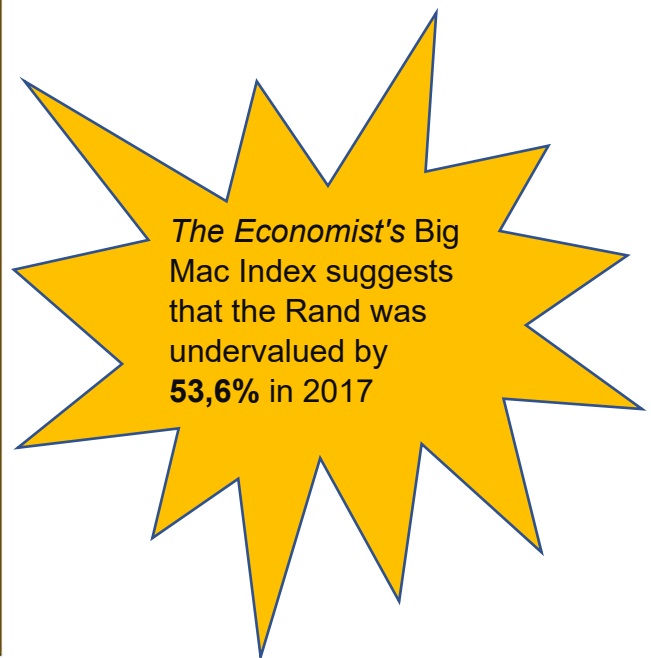
2.2 The Big Mac Index is an initiative created by *The Economist* that aims to measure whether currencies are priced at their 'correct' level.

The Big Mac Index compares the prices of hamburgers across different countries. The price of a Big Mac can reveal something about a country's currency value. It is all tied to a concept called **purchasing power parity (PPP)**.

In other words, a Big Mac should cost the same in any country, considering exchange rates. If a Big Mac is cheaper in one country compared to another, it suggests that country's currency might be undervalued and vice versa.

According to this well-known index, the Rand is grossly undervalued meaning that you get more value for your money in South Africa when buying a Big Mac burger.

Use the infographic printed in 2017, to answer the questions which follow:



[<<https://www.sagoodnews.co.za/hamburgers-good-value/>>]

2.2.1 Using the exchange rate of R12,26 to the USA dollar (\$), determine what a Big Mac in the USA would have cost in South African rands in 2017.

(2)

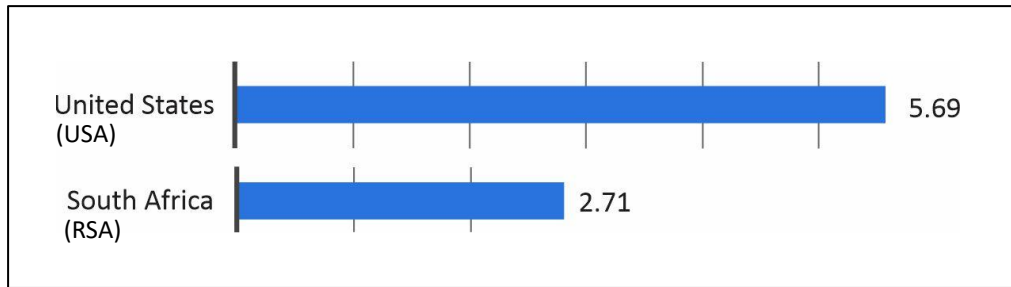
2.2.2 State which country, USA or RSA, would give you better value for money when purchasing a Big Mac.

(2)

2.2.3 Suggest a reason why *The Economist* decided to use a Big Mac to compare global prices.

(2)

2.3 The information below is from the 2023 Big Mac Index showing the price, in \$, of a Big Mac in each country.



[<<https://www.statista.com/statistics/274326/big-mac-index-global-prices-for-a-big-mac/>>]

2.3.1 Calculate what percentage the Big Mac is undervalued by in RSA as compared to the USA in 2023. Use the formula:

$$\text{Big Mac PPP} = \frac{\text{Foreign Price}}{\text{USA Price}} \times 100\%$$

(4)

2.3.2 Based on this percentage, has there been an improvement in the value of the rand against the dollar between 2017 and 2023?

(2)
[29]

QUESTION 3

Toolman Hire is a company which hires out a variety of equipment from your basic spanners to earth moving equipment. Toolman Hire rents a small area within different hardware stores where they pay a fee towards rent and electricity as well as a small commission to the employees of the various hardware stores who act as representatives on their behalf.



Think Tools

Think Toolman

3.1 The company's income:

The charge for hiring out equipment is R2 050 per item hired out.

The company's cost:

The salesman's commission is calculated at 10% of the hire fee per item.

An additional 30% of the hire fee gets invested into a savings account which when needed, is used to replenish/repair their stock. Rent for their area (within the hardware stores) is R10 000 per month.

3.1.1 The company's income can be represented as follows:

$$I = 2\,050 \times n$$

where I = Income and n = number of items hired out.

Complete the equation for the Cost of the company below:

C = _____

(3)

3.1.2 Use the given information to calculate the missing values (a), (b) and (c) in the table below.

Number of items Hired out	0	5	10	25	(c)
INCOME	R0	R10 250	20 500	(b)	R65 600
COST	R10 000	(a)	R18 200	R30 500	R36 240

(a) _____

_____ (2)

(b) _____

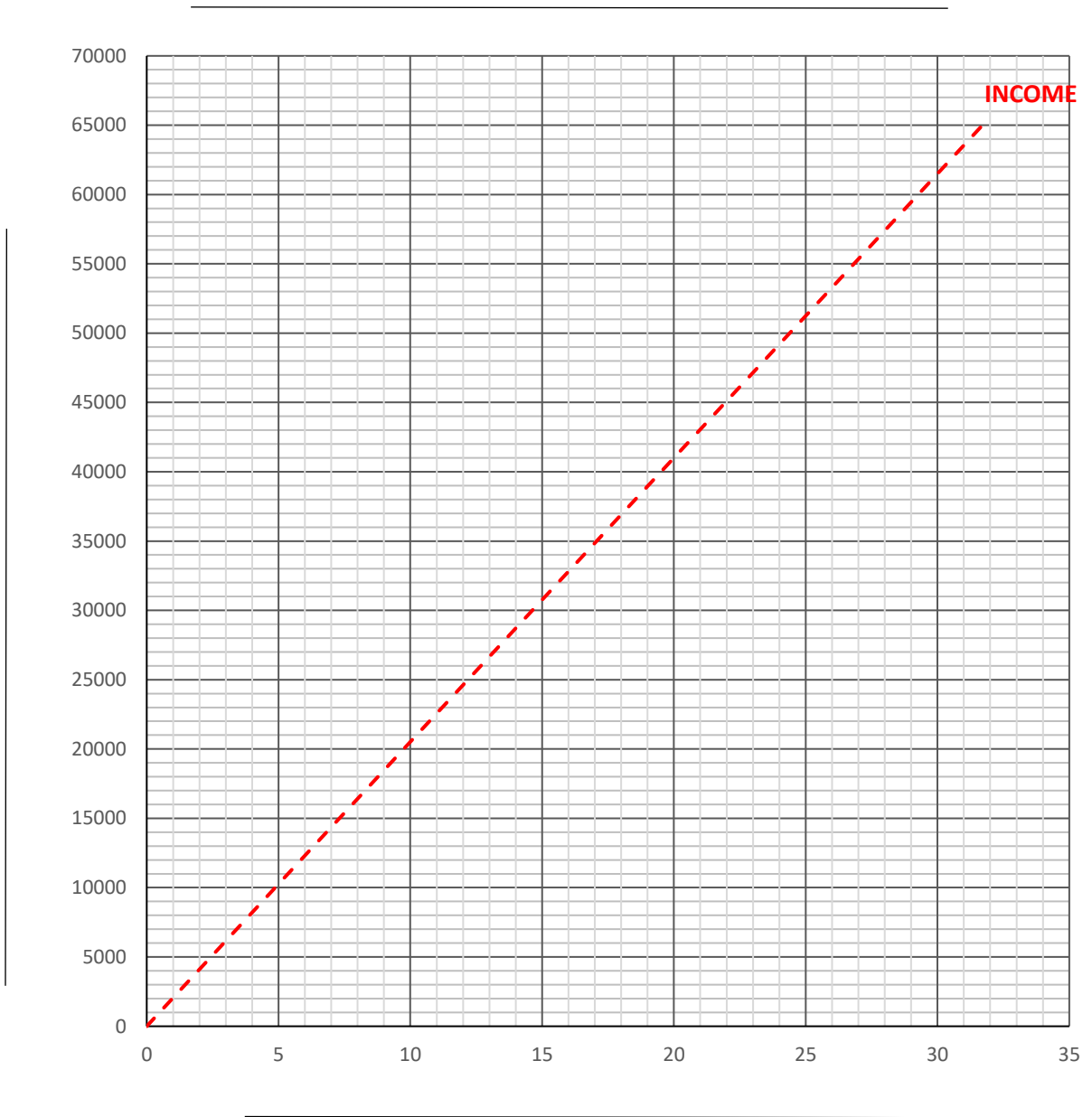
_____ (2)

(c) _____

_____ (2)

3.1.3 The grid below shows the graph for the predicted income for Toolman Hire.

Use your completed table from Question 3.1.2 to sketch the Cost predictions on the same set of axes. Insert a suitable heading and label your axes accordingly.



(5)

3.1.4 From the graph, determine how many tools, Toolman Hire need to hire out each month in order to start making a profit.

(2)

3.1.5 Calculate how much profit Toolman Hire could expect to make if they hired out on average 30 tools in a month.

(4)

3.2 The money invested from hiring of tools in one of the company's savings accounts, was R300 000 at the beginning of 2022. The account earns an interest of 12,5% compounded annually. If no other money was added to the account since then, how much money could Toolman Hire expect in the account at the end of 2024? Complete the table below by filling in the blank spaces.

Year	Amount in the bank at the start of the year	Interest (in rands)	Amount in the bank at the end of the year
2022	R300 000	R37 500	
2023			
2024			

(5)

3.3 Toolman Hire have been looking at their income, expenses and profit as shown in the table below:

Month	Income	Expenses	Profit
January–April	R4 251 260,00	R2 508 243,00	(a)
May–August	R3 954 400,00	(b)	R1 680 620,00
September–December	(c)	R2 298 380,00	R2 002 480,00

3.3.1 Calculate the values for (a), (b) and (c) above:

- (a) _____

 - (b) _____

 - (c) _____

- (3)

3.3.2 A profit margin is calculated using the following formula:

$$\text{Profit Margin} = \frac{\text{Profit}}{\text{Income}} \times 100\%$$

- (a) Calculate the profit margin for the months, May to August.

 - (b) If the profit margin for January to April is 41,0% and from September to December is 46,6%, discuss how the company has done over the course of the year.

- (2)

QUESTION 4

Scott and his family live in KZN. For his 40th birthday, he and his family visited the Kgalagadi Transfrontier Park for a long weekend at the beginning of February 2024.

The people he went with were his wife, their 9-year-old twins and Scott's parents. They arrived at Kgalagadi on Friday, 2 February 2024 and left on Monday, 5 February 2024.



The Kgalagadi Transfrontier Park lies on the border between South Africa and Botswana and comprises two adjoining national parks, namely, the Kalahari Gemsbok National Park on the South African side and the Gemsbok National Park in Botswana.

Scott would like to stay at the Nossob rest camp, as shown on the map below.



4.1 When making the booking, Scott discovered that the Nossob rest camp is best suited for families. They only wanted to book one unit to share. He accessed the following information on the Sanparks website. Use this information to answer the questions that follow.

Kgalagadi Transfrontier Park									
DAILY CONSERVATION FEES									
	Category		Adult rate/day	Child rate/day					
	SA citizens and residents		R116	R58					
	SADC nationals		R233	R116					
	International visitors		R465	R233					
NOSSOB REST CAMP									
Base rates for Accomodation									
Accommodation Type	No of units	Base rates for Accomodation				Number of Guests included in rate	Number of beds in unit	Additional Cost Per Night	
		Low season Not applicable	Shoulder season per night 16/01/2024 to 19/03/2024	High season per night 01/11/2023 to 15/01/2024 to 20/03/2024 to 31/10/2024	Add. Adult per night			Add. Child per night	
Campsite CK6P	20	N/A	R402	R455	2	–	R110	R55	
Premium campsite CK6PP	10	N/A	R793	R793	2	–	R190	R95	
Chalet CH2	7	N/A	R1 427	R1 427	2	2 single	N/A	N/A	
Chalet CH3	1	N/A	R1 427	R1 427	2	3 single	R317	R159	
Chalet CH4	4	N/A	R1 427	R1 427	2	2 single, 1 bunk	R317	R159	
Chalet CH6	1	N/A	R1 427	R1 427	2	6 single	R317	R159	
Family Cottage FA6	1	N/A	R2 421	R2 421	4	4 single	N/A	N/A	
Riverfront Chalet RF2	6	N/A	R2 421	R2 421	2	2 single	N/A	N/A	
Riverfront Chalet RF4	3	N/A	R3 721	R3 721	4	4 single	N/A	N/A	

[Source: <<https://www.sanparks.org/parks/kgalagadi>>]

4.1.1 Calculate how many days or part thereof were Scott and his family in Kgalagadi Transfrontier Park.

(2)

4.1.2 Determine how much Scott had to pay in total for the family’s conservation fees.

(3)

4.1.3 Of the accommodation options available, only one was suitable for Scott's family. Give the name and code of the accommodation type and explain why this was the accommodation selected.

(2)

4.2 The guided activities available in Nossob rest camp are shown below, along with the cost of each activity. The activity costs are per person, unless otherwise indicated.

Activity	Adult rate	Child Rate
4 × 4 drive	R4 651	
Early morning drive	R396	R *
Sunset drive	R396	R *
Night drive	R396	R *

4.2.1 The adult rate for the early morning, sunset and night drive is 80% more than the child rate. Calculate the child rate for the drives, shown by an asterix * in the table.

(3)

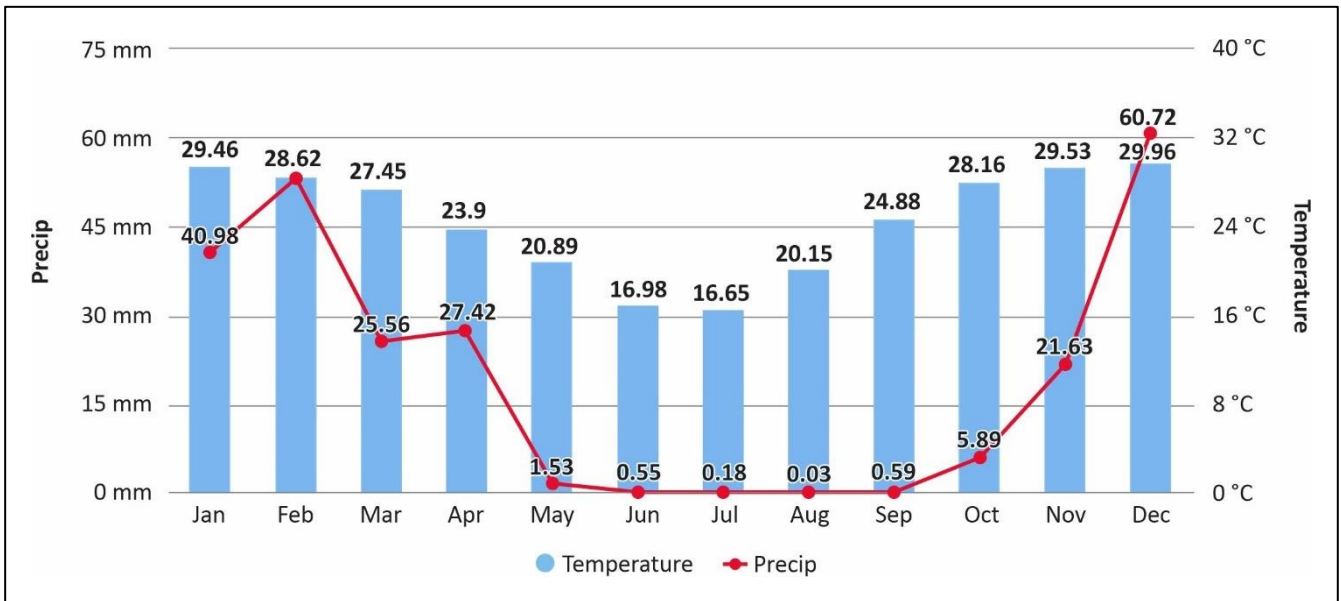
4.2.2 If Scott and his wife do the night drive on their first night, a sunset drive with the whole family on the second night, and on the last morning his parents take the children on an early morning drive, determine how much, in total, they will spend on activities.

(5)

4.2.3 Calculate the total amount that Scott paid to Sanparks for the weekend of 2–5 February 2024 which includes their activities, accommodation and conservation fees.

(6)

4.3 The graph below shows the average temperature and precipitation in Kgalagadi.



[Source: <<https://weatherandclimate.com/botswana/kgalagadi>>]

4.3.1 Determine the average temperature in February in °F if it was 28,62 °C. Give your answer to 1 decimal place. You may use the following formula:

$$^{\circ}\text{C} = \frac{5}{9} \times (^{\circ}\text{F} - 32)$$

(4)

4.3.2 Which measure of central tendency is best to determine the average temperature in a month? Give two reasons to support your answer.

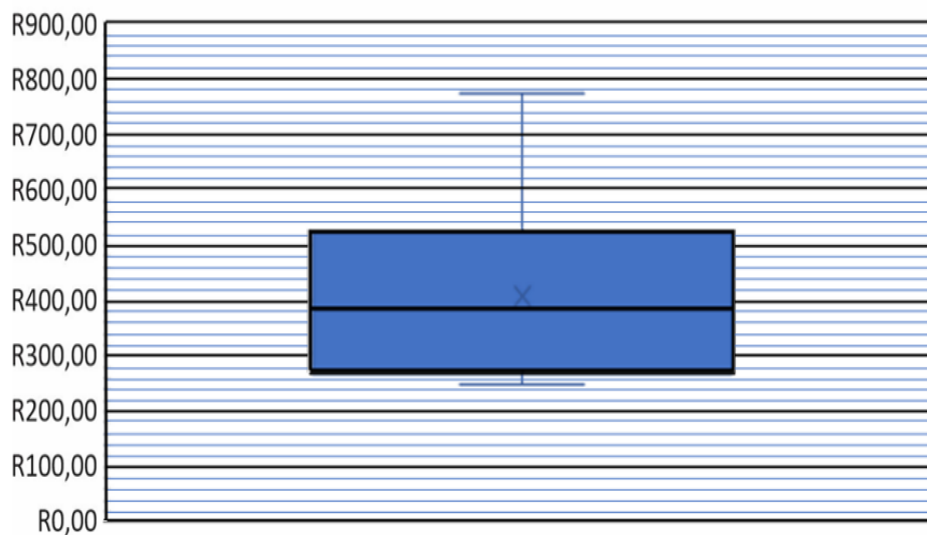
(3)

4.3.3 Would Scott have been better off going to Kgalagadi at a different time of year? Support your answer with information from the table.

(4)

4.4 The closest South African airport to Kgalagadi is Upington airport. Scott and his family will be flying from King Shaka, Durban. The box and whisker plot below shows the difference in parking tariffs over the long weekend of 2–5 February at 10 South African airports.

Comparison of Parking prices at South African airports over a long weekend



4.4.1 Determine what the range in parking costs is between the airports.

(4)

4.4.2 King Shaka's parking cost for the long weekend is found at Quartile 1. Determine how much it cost for Scott to park at King Shaka from 2–5 February 2024.

(2)

[38]

QUESTION 5

Geology is the study of the materials that Earth is constructed of, how those materials are structured, and what processes influence them. Geologists spend a lot of time in the field, conducting research and compiling reports and evaluations.

[Source: <<https://www.geologyin.com/2015/01/10-reasons-to-become-geologist.html>>]

5.1 Harry, a 67-year-old geologist, working as a mining consultant, earns a taxable monthly salary of R34 200.

5.1.1 Calculate Harry's annual taxable salary.

(2)

5.1.2 Harry says that he pays just over R5 000 each month for tax. Show, using calculations, on the next page, if Harry is correct. Use the table below to assist you with your calculation.

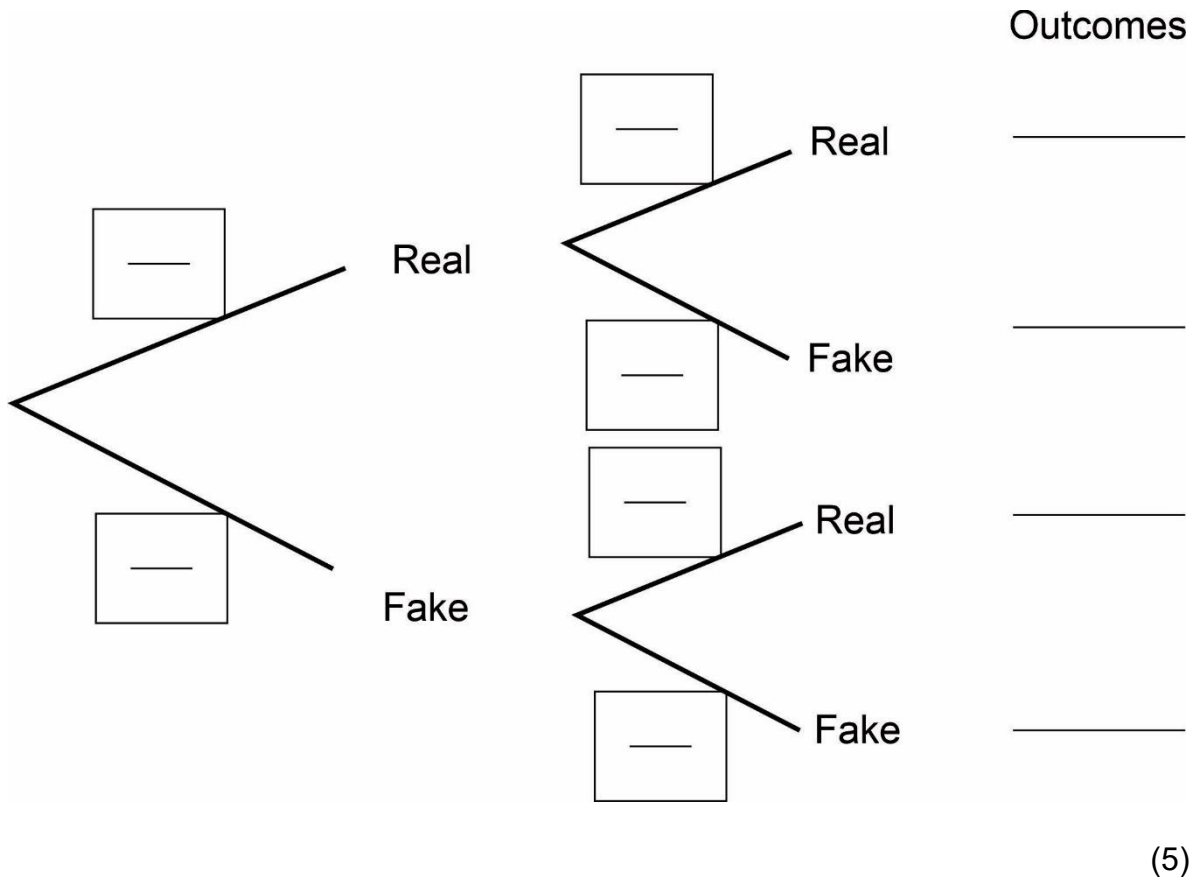
RATES OF TAX FOR INDIVIDUALS	
2024 tax year (1 March 2023 – 29 February 2024)	
Taxable income (R)	Rates of tax (R)
1 – 237 100	18% of taxable income
237 101 – 370 500	42 678 + 26% of taxable income above 237 100
370 501 – 512 800	77 362 + 31% of taxable income above 370 500
512 801 – 673 000	121 475 + 36% of taxable income above 512 800
673 001 – 857 900	179 147 + 39% of taxable income above 673 000
857 901 – 1 817 000	251 258 + 41% of taxable income above 857 900
1 817 001 and above	644 489 + 45% of taxable income above 1 817 000

Tax Rebate	2023/4
Primary	R17 235
Secondary (65 and older)	R9 444
Tertiary (75 and older)	R3 145

Tax Thresholds	2023/4
Under 65	R95 750
65 and older	R148 217
75 and older	R165 689

5.2 Part of Harry's work is identifying different rocks/minerals. There is a box with four Real Diamonds and six Fake Diamonds. He randomly removes two stones from the box without looking.

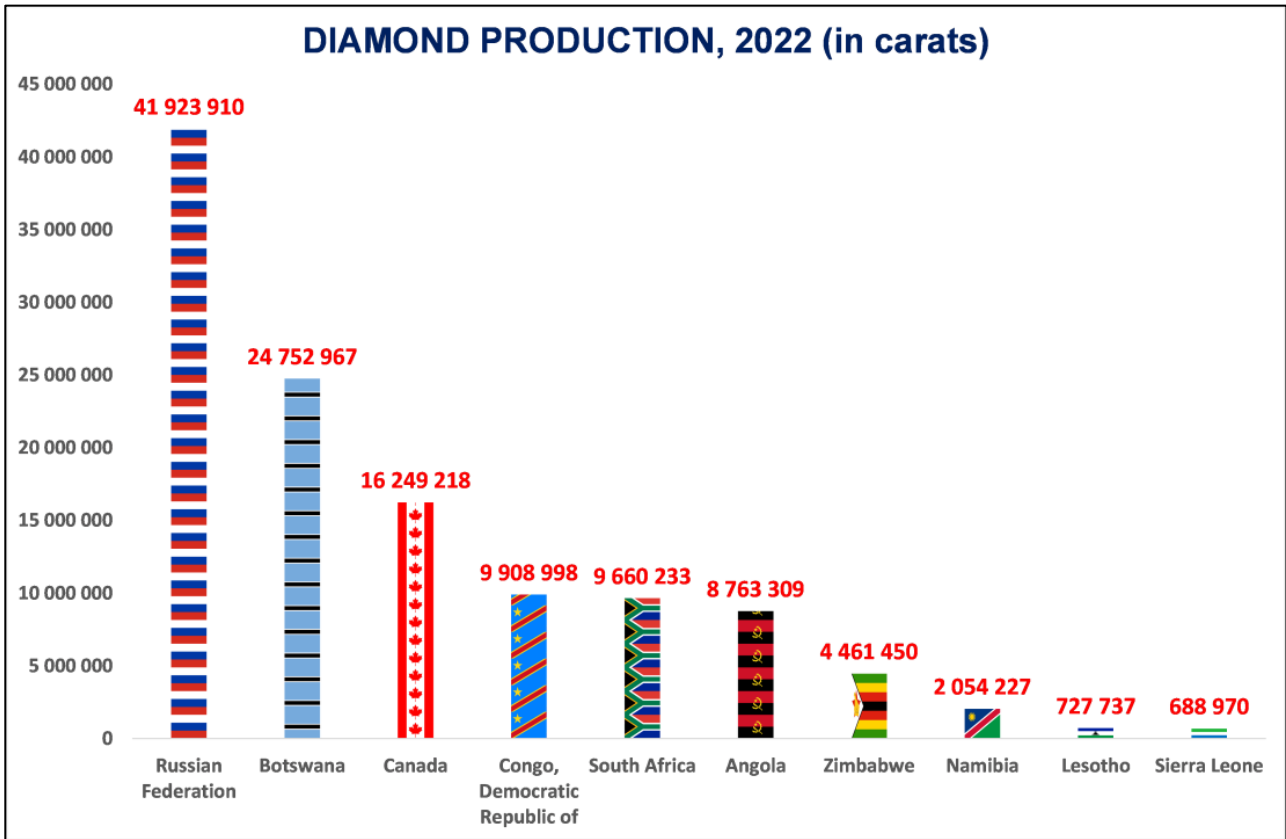
5.2.1 Complete the tree diagram below that represents the event of Harry drawing out two stones and list the outcomes eg. Real Real (R R).



5.2.2 Determine, as a percentage, the probability of Harry choosing one of each diamond (one fake, one real).

(4)

5.3 In 2022, an approximate total of 120 million carats of diamonds were mined around the world.



[Source: <<https://www.linkedin.com/pulse/review-world-diamond-production-trade-2022-dr-ashok-damarupurshad/>>]

Use the graph above to answer the questions that follow:

5.3.1 State whether you would consider South Africa to be a major contributor to the world diamond production and give a reason for your answer.

(2)

5.3.2 What would the probability be of purchasing a South African mined Diamond out of all the diamonds mined around the world?

(3)
[22]

Total: 150 marks

