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KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA



NATIONAL SENIOR CERTIFICATE

GRADE 12



MATHEMATICAL LITERACY

COMMON TEST

MARCH 2022

MARKS: 100

TIME: 2 hours

This question paper consists of 11 pages, an Addendum with 1 Annexure and 1 Answer Sheet.

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions. Answer ALL the questions.

2. The question paper has one ANNEXURE and one ANSWER SHEET.

   2.1 Use the ANNEXURE for QUESTION 2.1.

   2.2 Use the ANSWER SHEET for QUESTION 2.2.4

   2.3 Write your surname and name in the spaces provided on the ANSWER SHEET and hand in the ANSWER SHEET with your ANSWER BOOK.

3. Number the answers correctly according to the numbering system used in this question paper.

4. Start EACH question on a NEW page.

5. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.

6. Show ALL calculations clearly.

7. Round off ALL final answers appropriately according to the given context, unless stated otherwise.

8. Indicate units of measurement, where applicable.

9. Write neatly and legibly.

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QUESTION 1

1.1

Stanmorephysics.com

Given below is Duke Footwear catalogue showing some of the takkies sold online. All prices include 15% VAT.

DUKE FOOTWEAR CATALOGUE – FEBRUARY 2022



[Source: www.facebook.com]

Use the information above to answer the questions that follow.

1.1.1 Define the word "mode" according to the given context. (2)

1.1.2 Arrange the prices of the takkies in descending order. (2)

1.1.3 Calculate the range for the prices of takkies. (2)

1.1.4 In the statistical cycle, which stage comes after data representation? (2)

1.1.5 Based on the brand of takkies, is the data above numerical or categorical? (2)

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1.2

Mrs Kelly has an account with TFG. Given below is an extract from her statement:

TFG GROUP

Jet Stores	**Edgars Stores**	**Foschini stores**
Mrs T Kelly **27 Osborn Rd** **Eshowe 3815**		**Statement Number: 06** **Credit available: R2 405,67**

Date: 01/02/2022 **Account number: 5372611948**

Statement e-mail address: customerservices@tfg.co.za **Instalment R480.00**

Date	**Ref. no.**	**Details**	**Amount**	**Balance**	**Total Due R480.00**
22/02/2022		**Opening balance**		6 284.83	Due Date 07/03/2022
22/02/2022		**Cash payment Thank you!**	480.00	5 804.83	Credit limit R8 690.50
26/02/2022		**12 months plan Purchase Edgars**	615.50	6 420.33	Enquiries 0860231453
26/02/2022		**Purchase Edgars**	110.25	6 530.58	Office Hours 8:00 -18:00
26/02/2022		**Purchase Edgars**	309.80	**X**	
Closing balance				**Y**	

[Adapted from www.customerservices@tfg.co.za]

Use the information above to answer the following questions.

1.2.1 How much credit is available to Mrs Kelly? (2)

1.2.2 Write down Mrs Kelly's credit limit. (2)

1.2.3 Calculate the total value of the items Mrs Kelly bought in February 2022. (2)

1.2.4 Calculate the value of **X** and **Y**. (2)

1.2.5 Write down the instalment for February 2022. (2)

[20]

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QUESTION 2

2.1

ANNEXURE A shows the credit card statement of Mr Ntuli. Study the statement on ANNEXURE A and answer the following questions.

2.1.1 Interpret the balance brought forward amount for this statement. (2)

2.1.2 State the reason why some digits from the account number have been left out in the statement. (2)

2.1.3 Croxley Bank uses the formula below to calculate credit card withdrawal fees. Verify, using the formula, if the correct withdrawal fee was charged.

ATM withdrawal fees = R2 per R100 or part thereof. (3)

2.1.4 Use the transaction details to show, with calculations, how the closing balance amount of R28 135,76 was calculated. (5)

2.1.5 Give one disadvantage of Mr Ntuli buying items using his credit card. (2)

2.2 The table below shows the 2021/2022 Johannesburg Metropolitan Bus tariffs that came into effect on 01 July 2021.

2021/2022 METROBUS FARES FOR ADULTS

Stage No.	Cash Fare	52 Trip Monthly	44 Trip Monthly	14 Trip Monthly	12 Trip Monthly	10 Trip Monthly
1.	R13,50	R524,10	R443,40	R141,10	R121,00	R100,90
2.	R15,90	R616,30	R521,50	R165,90	R142,30	R118,50
3.	R19,00	R742,50	R628,20	R199,80	R171,30	R142,80
4.	R23,00	R892,80	R755,60	R240,40	R206,10	R171,70
5.	R26,50	R1033,50	R874,60	R278,40	R238,50	R198,70
6.	R29,00	R1116,10	R944,30	R300,50	R257,50	R213,60
7.	R31,30	R1218,00	R1030,60	R327,90	R281,10	R234,30
8.	R33,60	R1310,20	R1108,60	R352,70	R302,40	R252,00

[Adapted from www.joburg.org.za/2021-2022/TARIFFS/Bus

Use the information above to answer the questions that follow.

2.2.1 Define *"tariff"* according to the given context. (2)

2.2.2 Calculate the cost for a return fare, paid in cash to a destination in Stage 7. (2)

2.2.3 Mr Ntuli will be working at a destination in Stage 2 for six days. Calculate what the total cost of the return trips will be if he pays cash fare. (3)

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2.2.4 Mr Ntuli would like to compare the costs in 2.2.3 and what he would pay for a 12-trip monthly card. On the same set of axes, draw the graph showing the scenarios for six days that can assist Mr Ntuli to make the right decision. (5)

2.2.5 Use your graph in 2.2.4 to answer the following questions:

(a) After a minimum of how many days will it be cheaper for Mr Ntuli to buy a 12-trip monthly card? (2)

(b) Which option will be cheaper for Mr Ntuli? (2)

[30]

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QUESTION 3

3.1

The economically active population of South Africa is shown in TABLE 1 below for the 3rd quarter of 2021.

	Black African	Coloured	Indian/Asian	White	Total
	Thousand	Thousand	Thousand	Thousand	Thousand
Both genders	**10 698**	**1 391**	**445**	**1 747**	**14 281**
Manager	623	93	93	533	1 342
Professional	473	93	49	330	946
Technician	753	149	69	264	1 235
Clerk	919	172	57	262	1 411
Sales and services	1 813	176	74	86	2 149
Skilled agriculture	41	2	4	15	**A**
Craft and related trade	1 191	145	42	148	1 526
Plant machine operator	1 057	84	30	48	1 219
Elementary	3 037	414	23	60	3 534
Domestic worker	791	62	3	0	856

[Adapted www.statssa.gov.za]

Study TABLE 1 above and answer the questions that follow.

3.1.1 Determine the total number of people actively employed in South Africa. (3)

3.1.2 Determine the median for the Black African population. (3)

3.1.3 Now determine the average for the Black African population. (3)

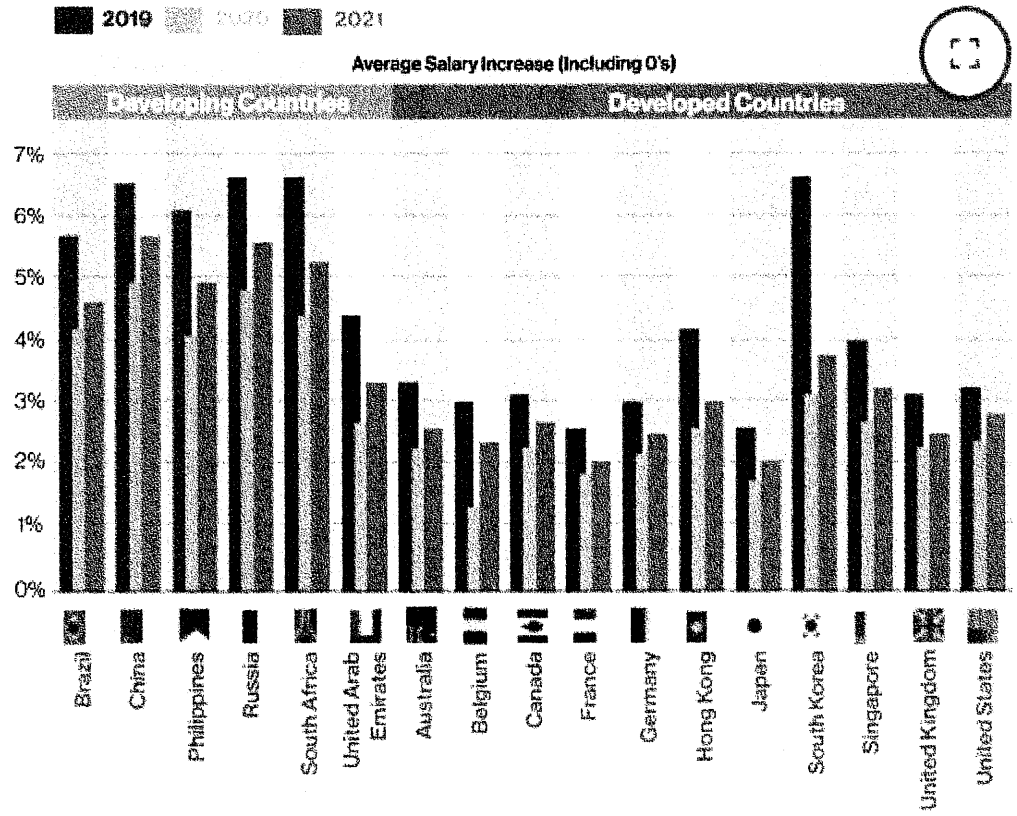
3.1.4 Which measure of central tendency is a better representation of the data: mean or median? Give a reason for your answer. (3)

3.1.5 The range for Total actively employed population is 3 471 000. Determine **A**, the lowest number of skilled agricultural workers. (3)

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3.2

The graph below shows the percentage change in salaries between developing countries and developed countries from 2019 to 2021.



[Source: www.wtwco.com]

Study the graph above and answer the questions that follow.

3.2.1 Which year showed the biggest percentage change in salaries in both developing and developed countries? (2)

3.2.2 Describe the general trend in the percentage change in salaries from 2019 to 2020. (2)

3.2.3 Calculate the average percentage change in salaries for South Africa from 2019 to 2021. (3)

[22]

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QUESTION 4

4.1

Thabo is a 45-year-old businessman. His monthly taxable income is R39 500.
Thabo belongs to a medical aid fund.

TABLE 2 below indicates rates of tax for individuals for the Tax year 2021/2022

TABLE 2: 2021/22 TAX YEAR (1 MARCH 2021 - 28 FEBRUARY 2022)

TAX BRACKET	TAXABLE INCOME (R)	RATES OF TAX (R)
1	1 – 216 200	18% of taxable income
2	216 201 – 337 800	38 916 + 26% of taxable income above 216 200
3	337 801 – 467 500	70 532 + 31% of taxable income above 337 800
4	467 501 – 613 600	110 739 + 36% of taxable income above 467 500
5	613 601 – 782 200	163 335 + 39% of taxable income above 613 600
6	782 201 – 1 656 600	229 089 + 41% of taxable income above 782 200
7	782 201 – 1 656 600	229 089 + 41% of taxable income above 782 200

TAX REBATES

Tax Rebate	
	2022
Primary	R15 714
Secondary (65 and older)	R8 613
Tertiary (75 and older)	R2 871

MEDICAL AID CREDIT

Per Month	
	2022
For the taxpayer	R332
For the taxpayer and one dependant	R664
For each additional dependant	R224

[Adapted from:www.sars.gov.za]

Use TABLE 2 above to answer the questions that follow.

4.1.1 Determine Thabo's annual taxable income. (2)

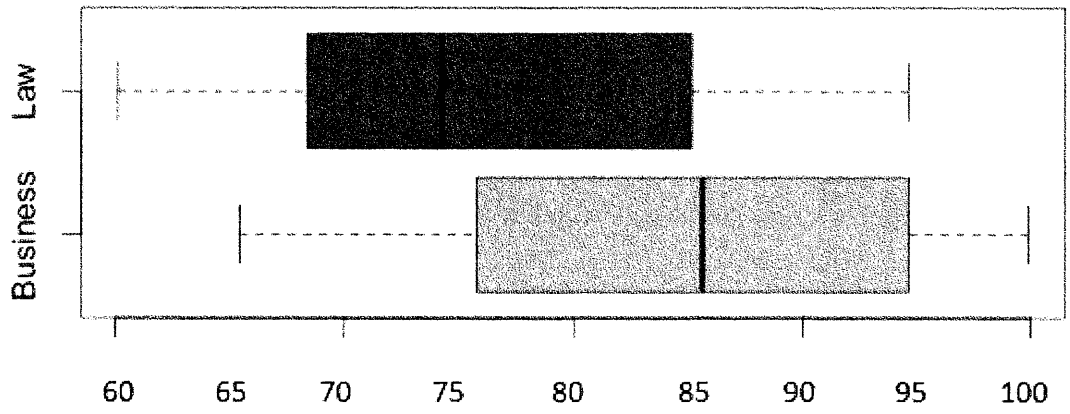
4.1.2 Hence, calculate Thabo's monthly income tax paid to SARS. (8)

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4.2

The box and whisker plot below shows the monthly salary in the Law and the Business fields.

Box and Whisker Plot of Salaries in thousands of Rands



[Source: www.statsstackexchange.com]

Use the information above to answer the following questions:

4.2.1 Determine the difference in the median salaries of the Law and the Business fields. (3)

4.2.2 Calculate the inter quartile range for the Business field

You may use the formula:

IQR = Q3 – Q1 (3)

4.2.3 A statement was made that 75% of people in the Law field earn a salary less than 50% in the Business field.

Verify if this statement is CORRECT, showing all calculations. (3)

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4.3



A total amount of R248,8 billion was allocated to the Health Sector in the 2022 Budget Speech. TABLE 3 below shows the funding of the Covid -19 vaccine rollout budget plan.

TABLE 3: FUNDING OF THE COVID-19 VACCINE ROLLOUT BUDGET

Funding vaccine rollout

R million	2021/22	2022/23	2023/24	Total	Funding mechanism
	Medium-term estimates				
Department of Health	4 350	2 100	–	6 450	Main budget
Provincial departments of health	1 500	900	–	2 400	HIV, TB, malaria and community outreach grant
South African Medical Research Council	100	–	–	100	Department of Health
Government Communication and Information System	50	–	–	50	Main budget
Total allocated	**6 000**	**3 000**	–	**9 000**	
Additional potential funding				**9 000**	Contingency reserve and emergency allocations

Source: National Treasury

Use the information in TABLE 3 above to answer the following questions:

4.3.1 Determine the decrease, as a number, in the Total Allocated from 2021/22 to 2022/23.

Give a reason for this decrease. (3)

4.3.2 A statement was made that the vaccine rollout funding was less than 1% of the total budget allocation for Health Sector in 2022.

Verify if this statement is CORRECT, showing all calculations. (3)

4.3.3 17,6 million people were vaccinated in South Africa. This was 29,7% of the total population. Determine the total population. (3)

[28]

TOTAL: [100]

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MATHEMATICAL LITERACY

ADDENDUM

COMMON TEST

MARCH 2022

This Addendum consists of 3 pages with 1 Annexure and 1 Answer Sheet.

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ANNEXURE A

QUESTION 2.1

CREDIT CARD STATEMENT OF MR D NTULI

CROXLEY BANK LTD — **Card Division**

Mr D Ntuli
25 Stephen Offer Street
Eshowe
3815

P O Box 397
Eshowe
3815

Platinum Credit Card
Account Number: 2010**** ****4558

Statement Details

Statement Date	25 Jan. 2022
Statement Period	25 Dec. 2022 to 25 Jan. 2022
Statement Frequency	Monthly
Statement Number	28

Payment Information

Total amount outstanding on this statement	27 983,43
Minimum payment due	908,37
Payment due date	23 Jan. 2022
Credit limit	60 500,00
Available money to spend	32 516,00

Account Summary

Balance brought forward	-50,41
Payments and credits	500,00
Purchases and debits	28 688,67
Closing balance	28 135,76

VAT Summary

Total charged excluding VAT	6,96
Total VAT	1,04
Total charged including VAT	8,00

Transaction details

Date	Description	Amount	Date	Description	Amount
25 Dec. 21	Balance brought forward	-50,41			
Credits			**Credits**		
3 Jan. 22	Fund transfer	-500,00	25 Jan. 22	Credit interest	-2,50
Debits			**Debits**		
3 Jan. 22	ATM withdrawal	350,00	11 Jan. 22	D W Travel	18 503,49
3 Jan. 22	ATM withdrawal fee	8,00	11 Jan. 22	Crocs Hotel	9 827,18
Closing balance					**28 135,76**

[Adapted from www.croxleybank.com]

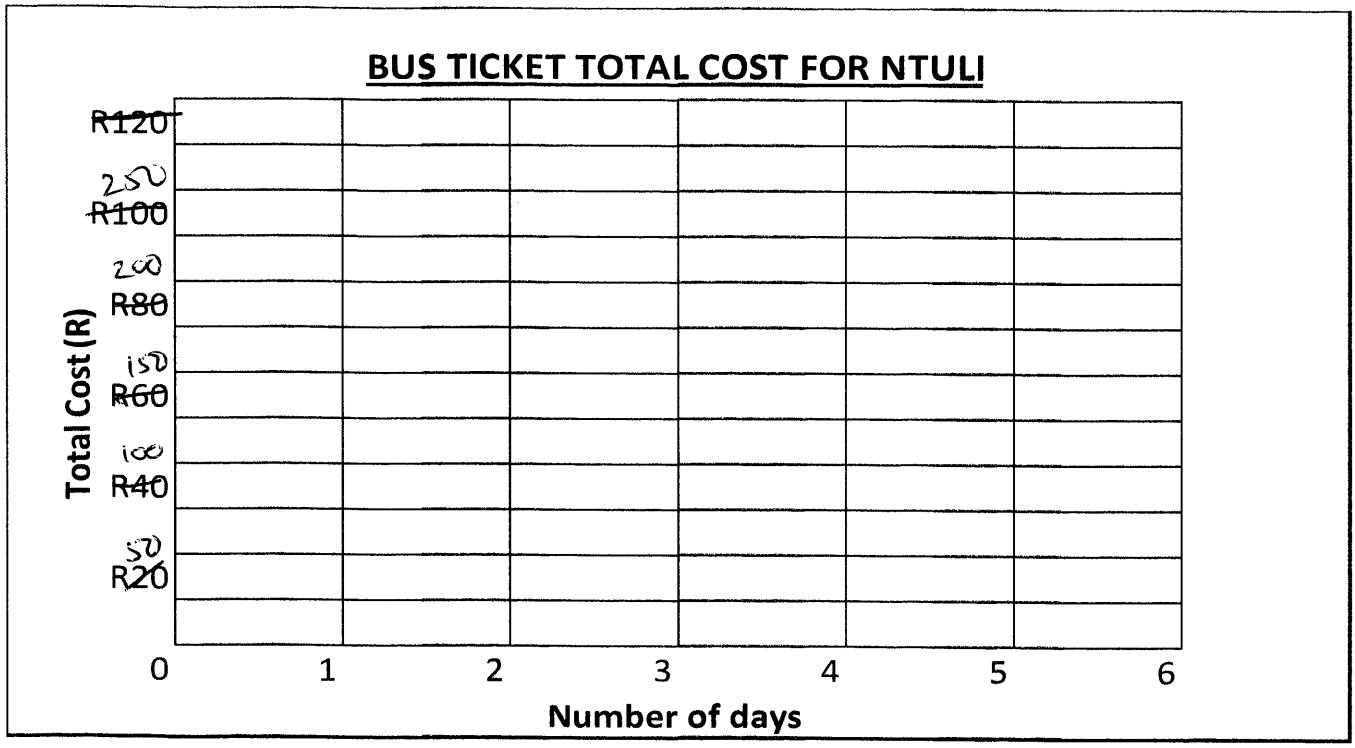
NOTE: Up to 55 interest free days when you pay your balance in full.

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ANSWER SHEET

NAME OF LEARNER: _____ **GRADE 12** ____

QUESTION 2.2.4



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MARKING GUIDELINE

MARCH 2022

MARKS: 100

SYMBOL	EXPLANATION
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RD/RM	Reading from a table/ graph/ diagram/Map
SF	Correct substitution in a formula
O	Opinion/ reason/deduction/example/Explanation
J	Justification
R	Rounding off
F	deriving a formula
AO	Answer only full marks
P	Penalty e.g. for units, incorrect rounding off etc.
NPR	No penalty for rounding / units

This marking guideline consists of 8 pages.

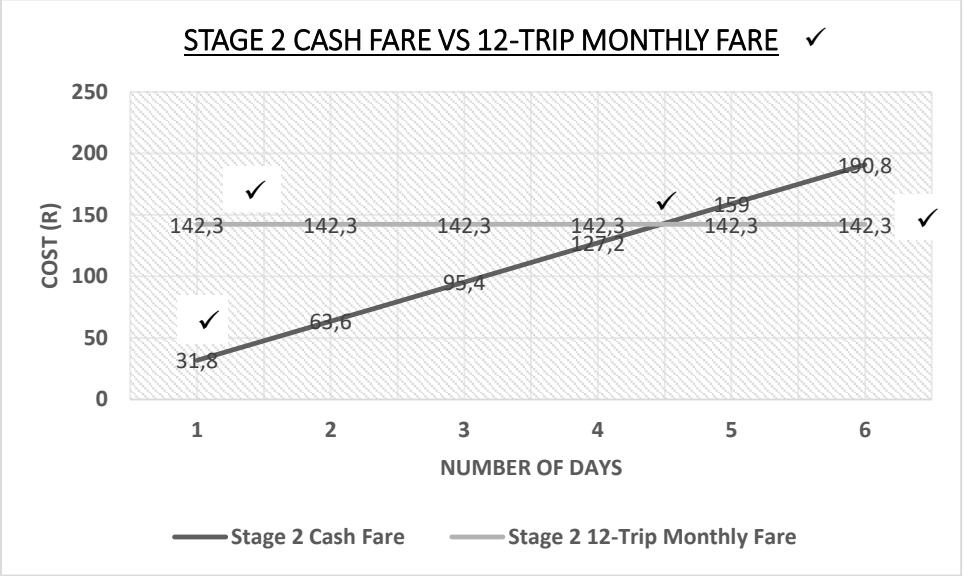
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QUESTION 1 [20 MARKS]			
No.	**Solution**	**Explanation**	**T&L**
1.1.1	It is the takkie price that has highest frequency✓✓A	2A correct definition (2)	D L1
1.1.2	R1 600; R1 600; R1 500; R1 400; R1 400; R1 400; R1 300; R1 300; R999✓✓A	2A descending order (2)	D L1
1.1.3	Range = R1600 − R999✓MA = R601✓A	1MA concept of range 1A correct answer (2)	D L1
1.1.4	Summarising data✓✓A **OR** Interpreting or Analysing data✓✓A	2A correct answer (2)	D L1
1.1.5	Categorical✓✓A	2A correct answer (2)	D L1
1.2.1	R2 405,67✓✓A	2A correct answer (2)	F L1
1.2.2	R8 690,50✓✓RT	2RT correct answer (2)	F L1
1.2.3	Total = R615,50 + R110,25 + R309,80✓MA = R1 035,55✓CA	1MA for adding CA answer (2) **AO**	F L1
1.2.4	X = R6 530,58 + R309,80 = R6 840,38✓A Y = R6 840,38✓CA 	1A for the value of X **CA from X** 1CA for the value of Y (2) **AO**	F L1
1.2.5	R480,00✓✓RT	2RT correct answer (2)	F L1
		[20]	

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QUESTION 2 [30 MARKS]			
2.1.1	Mr Ntuli overpaid by R50,41✓✓O **OR** The bank owes Mr Ntuli R50,41✓✓O	2O explanation (2)	F L1
2.1.2	To protect the client from being a victim of fraud✓✓O **OR** Protection of personal information✓✓O	2O reason (2)	F L4
2.1.3	Fees = R2 × (R350 ÷ R100)✓M = R2 × 3,5 = R2 × 4 = R8,00✓A The correct fee was charged✓O	1M dividing by R100 3,5 rounded up to 4 1A answer 1O opinion (3)	F L4
2.1.4	Total Credit = R500,00 + R50,41 + R2,50✓MA = R552,91✓A **OR** Total Credit = −R500,00 + (−R50,41) + (−2,50)✓MA = −R552,91✓A Total Debit = R350,00 + R18 503,49 + R8,00 + R9 827,18✓M = R28 688,67✓A Closing Balance = R28 688,67 − R552,91✓M = R28 135,76	1MA for adding 1A answer 1MA for adding 1A answer 1M for adding 1A answer 1M subtracting R552,91 (5)	F L3
2.1.5	Higher interest if the total outstanding is not paid in full within the 55 interest free days✓✓O **OR** Creating a bad credit rating if he fails to honour the payment agreement✓✓O	2O disadvantage 2O disadvantage (2)	F L4
2.2.1	It is the rate of charge for using Metro bus by customers. ✓✓A	2A explanation (2)	F L1
2.2.2	Return fare = 2 × R31,30✓M = R62,60✓A	1M multiplying by 2 1A answer (2)	F L2

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2.2.3	Return trip for Stage 2 $= R15,90 \times 2$ $= R31,80$✓A Total Cost $= 6 \times R31,80$✓M $= R190,80$✓CA	1A R31,80 1M multiplying by 6 1CA answer (3)	F L2
2.2.4		2A cash fare line 2A 12-trip monthly 1A Graph title (5)	F L3
2.2.5	(a) After 4 days✓✓RG	2RG reading from graph (2)	F L1
	(b) The 12 − trip monthly fare eventually works out cheaper✓✓O	2O opinion (2)	F L4
		[30]	

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QUESTION 3 [22 MARKS]

3.1.1	✓RT Total number of People = 14 281 × 1000✓MA = 14 281 000✓A	1RT correct value 1MA multiplying by 1000 1A answer (3)	DH L2
3.1.2	Median = 41, 473, 623, 753, 791, 919, 1 057, 1 191, 1 813, 3 037✓A = (791+919) ÷ 2✓MA =855 000✓CA	1A arranging in order 1MA dividing by 2 1CA answer (3)	DH L2
3.1.3	✓ RT Average = 10 698 ÷ 10 ✓ MA =1069,8 = 1 069 800✓CA **OR** Average = $\frac{623+473+753+919+1\,813+41+1\,191+1\,057+3\,037+791}{10}$✓ M = $\frac{10\,698}{10}$✓ MA = 1 069,8 = 1 069 800✓ CA	1RT correct answer 1MA dividing by 10 1CA answer in thousands 1M adding values 1MA dividing by 10 1CA answer in thousands (3)	DH L3
3.1.4	Median✓ O It is not affected by the outlier. ✓✓O	1O opinion 2O explanation (3)	DH L4
3.1.5	3 471 = 3 534 – A✓ MA A = 3 534 – 3 471✓ M = 63 ✓ CA **OR** 3 471 000 = 3 534 000 – A✓ MA A = 3 534 000 – 3 471 000✓ M = 63 000✓ CA 	1MA Concept of range 1M simplification 1CA answer 1MA Concept of range 1M simplification 1CA answer **Accept 62** (3)	DH L4
3.2.1	2019✓✓RG	2RG correct year (2)	DH L2
3.2.2	Decrease from 2019 to 2020 ✓✓O	2O explanation (2)	DH L2

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3.2.3	Average = $\frac{6,5 + 4,3 + 5,2}{3}$ ✓RG✓M = 5,3% ✓CA	1RG adding values 1M dividing by 3 1CA average (3) Accept leeway of **2019(6,5% to 6,8%)** **2020(4,3% to 4,5%)** **2021(5,2% to 5,4%)**	DH L2
			[22]

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QUESTION 4 [28MARKS]

Q	Solution	Explanation	T &L
4.1.1	Annual taxable income = R39 500 × 12 ✓MA = R474 000✓A	1MA multiplying by 12 1A correct value (2)	F L2
4.1.2	✓A Annual tax = R110 739 + 0,36 (R474 000 – 467 500) ✓SF = R113 079✓CA Less Rebate = R113 079 – (R15 714) ✓MCA = R97 365✓CA Less Medical Aid credit = R97 365– (R332×12) ✓MCA = R93 381 Monthly tax = R93 381 ÷ 12 ✓MA = R7 781,75 ✓CA	1A correct tax bracket 1SF annual taxable income 1CA simplification 1MCA subtracting rebate 1CA simplification 1MCA subtracting medical credit for the year 1MA dividing by 12 1CA answer (8)	F L3
4.2.1	Difference in median salaries = R85 000 – R74 000✓RG✓M =R11 000✓A	1RG reading correct value 1M subtracting 1A answer (3) **Accept leeway of 2**	DH L2
4.2.2	IQR = 95 – 76 ✓RG✓SF = R19 000 ✓CA	1RG correct values 1SF substitution 1CA answer (3) **Accept leeway of 75 to 77**	DH L3
4.2.3	Q_3 of Law = 84 000 ✓RG Q2 of Business = 85 000✓RG The statement is CORRECT. ✓O	1RG correct value 1RG correct value 1O opinion (3) **Accept leeway of 2**	DH L4
4.3.1	Decrease = 6 000 – 3 000✓MA = 3 000 million or 3 000 000 000 or 3 billion✓A Most of the population received the vaccine✓O **OR** Any valid reason.	1 MA subtracting correct values 1A correct answer 1O opinion (3)	F L3

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4.3.2	Percentage of total budget $= \frac{3bn}{248{,}8bn} \times 100$✓MA $= 1{,}21\%$✓A Statement is INCORRECT✓O	1MA dividing correct values 1A correct answer 1O opinion (3) **Accept 2,41%**	F L3
4.3.3	Total population = (17 600 000 × 100) ÷ 29,7✓MA✓MA = 59 259 259,26 = 59 259 259 ✓A **OR** Unvaccinated = $\frac{17\,600\,000 \times 70{,}3}{29{,}7}$✓MA = 41 659 259,26 Total population = 41 659 259,26 + 17 600 000✓MA = 59 259 259,26 = 59 259 259✓A	1MA multiplying by 100 1MA dividing by 29,7 1A correct answer 1MA multiplying by 70,3 and dividing by 29,7 1MA adding 1A correct answer (3)	F L3
			[28]
		TOTAL 100 MARKS	

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