



**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

JUNE 2023

MATHEMATICAL LITERACY P1

MARKS: 100


TIME: 2 hours

Stanmorephysics



This question paper consists of 10 pages, including an addendum and answer sheet.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions. Answer ALL the questions.
2. 2.1 Use the ANNEXURE in the ADDENDUM to answer the following questions:


ANNEXURE A for QUESTION 4.1.
- 2.2 Answer QUESTION 3.2.2 on the attached ANSWER SHEET.
- 2.3 Write your NAME and GRADE in the spaces provided on the ANSWER SHEET for QUESTION 3.2.2. 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. Diagrams are NOT necessarily drawn to scale, unless stated otherwise.
10. Write neatly and legibly.



QUESTION 1

1.1

Two hundred Grade 10 and 11 learners planned to go on a tour to Durban. Six and a half percent (6,5%) less learners eventually went to Durban.



- 1.1.1 Write 6,5% as a simplified common fraction. (2)
- 1.1.2 Determine the number of learners who went on a tour. (3)
- 1.1.3 Express the number of learners who went on the tour, and the number of learners who planned to go on a tour, as a simplified ratio. (2)
- 1.1.4 Write down the probability (as a percentage) of randomly selecting learners who did not go on a tour. (2)

1.2

David was born in February 1998 and Sam in March 1993. Their father shared R409 750 in the ratio of their ages, before he died in 2023.

- 1.2.1 Write down David and Sam's ages in April 2023. (2)
- 1.2.2 Calculate the amount Sam and David will each receive. (3)

1.3

Amanda bought fifteen packets of 2,5 kg White Star Super maize meal, as a part of a gift for needy families. One 2,5 kg packet cost R38,99.

SALE

R38,99



Use the above information to answer the questions that follow.

- 1.3.1 Write down the 'VAT' acronym in full. (2)
- 1.3.2 Write down the amount of VAT she paid on the above items. (2)
- 1.3.3 Calculate the total amount she paid for the above items. (2)

[20]

QUESTION 2

- 2.1 Lexion approached two car rental companies to look for a specific car to rent for 3 days. He visited his brother, Touch, in Jeffreys Bay.

Study the information below from the two car rental companies for the same car and answer the questions that follow.

TABLE 1: TARIFF FROM CAR RENTAL COMPANIES

COMPANY	Security deposit	Excess charges	Hiring cost for January	
			5 th to 7 th	13 th to 16 th
A	R18 650	R17 000	R2 340,90	R1 955,33
B	R18 650	R17 000	R3 220,65	R2 661,91

NOTE: Company A = $2\,340,90 + 3,00 \times (n - 600)$ kilometres

Company B = $3\,220,65 +$ unlimited mileage

Unlimited mileage – when a customer is not charged on kilometres travelled.
Excess charges means the difference between the billed charges and the applicable allowed amount or non-contracting amount.

- 2.1.1 Write down the amount he will pay for excess charges. (2)
- 2.1.2 If Lexion used company A and damaged the car after being involved in an accident, calculate the amount he will claim back from the security deposit. (3)
- 2.1.3 Give a reason why most car rental companies only rent out cars to people who have enough credit on their credit cards. (2)
- 2.1.4 Lexion travelled 950 kilometres for the three days he hired the car. He stated that it would have been cheaper if he used company B, instead of company A. Verify his statement. (5)
- 2.1.5 Give a possible reason why there was a difference in the rental costs at different times in January. (2)



2.2

Employees contribute tax monthly through SARS. Chloe, a 51-year-old educator, earns R34 447,22 monthly and contributes 7,5% of her gross salary towards a pension fund. She also has medical aid for herself, husband and two children. The tax table below is used to calculate the amount each person will contribute according to his/her salary.

TABLE 2: TAX RATES FOR 2023/2024

TAXABLE INCOME	RATES OF TAX
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

TABLE 3: TAX REBATES AND MEDICAL AID CREDITS FOR 2023/2024

TAX REBATE	
Primary	R16 425
Secondary (65 and older)	R9 000
Tertiary (75 and older)	R2 997
MEDICAL TAX CREDITS PER MONTH FOR MEDICAL FUND MEMBERS	
Taxpayer	R347
First dependent	R347
For each additional dependent	R234

[Source: www.sars.gov.za]

Use TABLE 2 and TABLE 3 above to answer the questions that follow.

- 2.2.1 Write down the acronym SARS in full. (2)
- 2.2.2 Write down the number of tax brackets in the personal income tax table above. (2)
- 2.2.3 Show by means of calculations how the minimum amount (77 362) charged from one of the tax brackets is calculated. (3)
- 2.2.4 Give the meaning of the term *tax rebate* according to the context. (2)
- 2.2.5 Chloe said that her monthly tax contribution is R3 550,25. Verify, showing ALL calculations whether her statement is CORRECT. (8)

[31]



QUESTION 3

3.1 The table below shows the estimates on the number of full-time employees per quarter from June 2018 to September 2022.

TABLE 4: FULL-TIME EMPLOYEES PER QUARTER FROM JUNE 2018 TO SEPTEMBER 2022

YEAR	QUARTER	NUMBER OF EMPLOYEES (in '000')	CHANGE IN NUMBER OF EMPLOYEES (in '000')	% CHANGE IN NUMBER OF EMPLOYEES
		FULL-TIME	QUARTERLY RESULTS	
2018	June	1 134	-	-
	Sept	1 141	7	0,6
	Dec	1 152	11	1,0
2020	March	1 109	5	0,5
	June	1 036	(73)	(6,6)
	Sept	1 039	A	B
	Dec	1 037	(2)	(0,2)
2022	March	1 093	(7)	(0,6)
	June	1 098	5	0,5
	Sept	1 097	(1)	(0,1)

[Adapted from www.statssa.gov.za]

Use the table above to answer the questions that follow.

- 3.1.1 Identify the month and the year that had the lowest number of full-time employees. (2)
- 3.1.2 Give the number of full-time employees for the third quarter of 2022 to the nearest million. (2)
- 3.1.3 Calculate the percentage change (correct to ONE decimal place) in the number of employees from June 2020 to September 2020.

You may use the following formula:

$$\text{Percentage change} = \frac{\text{new value} - \text{old value}}{\text{old value}} \times 100\% \quad (4)$$

- 3.1.4 Write down the modal value from March 2020 to September 2022 of the number of full-time employees. (2)
- 3.1.5 Give ONE reason why the number of full-time employees decline in any industry. (2)
- 3.1.6 Give the reason why the other values are written in brackets. (2)

3.2 Two samples were used in a research. One from people using smartphones, and the other from people using tablets. Study the results in the table below and answer the questions that follow.

ENTERTAINMENT CATEGORIES	SMARTPHONES	TABLETS
Games	35%	C
Social networking	29%	15%
Utilities	20%	3%
Music and videos	8%	13%
News	3%	4%
Other	5%	8%
TOTAL	100%	100%

[Adapted from learnenglish.britishcouncil.org]

3.2.1 Calculate the value of **C**. (3)

3.2.2 On ANSWER SHEET 1 an incomplete graph for the smartphones and tablets are drawn. Complete the graph by drawing the missing columns. (4)

[21]



QUESTION 4

4.1 There are two types of jobs, least stressful and most stressful, with their salaries, displayed on the graph plotted in ANNEXURE A.

Use the information on ANNEXURE A and answer the questions that follow.

4.1.1 Identify another type of graph that can be used to display the stressful jobs' salaries. (2)

4.1.2 Identify from the graph TWO jobs that deal with health issues. (2)

4.1.3 Determine the probability (as a percentage) of randomly selecting an employee earning a salary of more than \$70 000. (4)

4.1.4 Convert the highest salary on the least stressful jobs graph, to nearest million rands given that \$1 = R18,42. (4)

4.2 Ivan received his home insurance calculations. Study the statement below and answer the questions that follow: SASRIA – South African Special Risk Insurance Association.

POLICY NUMBER: 4516172367	
PREMIUM SUMMARY	ANNUAL PREMIUM CALCULATIONS
SECTION	2023
Homeowner's/Building	R4 456,38
SASRIA	R73,48
Subtotal (excl. VAT)	R4 529,86
Administration fee (incl. VAT)	---
Total premium (incl. VAT)	R5 309,21

SASRIA is a state-owned entity that provides coverage for damage caused by special risks such as politically motivated strikes and public disorders.

4.2.1 Write down the total premium amount including VAT in cents. Give your final answer in words. (4)

4.2.2 Express the administration fee as a percentage of the total premium including VAT. (5)

4.2.3 Determine the monthly premium (to the nearest rand) Ivan will pay. (3)

4.2.4 Determine the total VAT amount paid on this policy. (4)



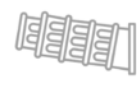
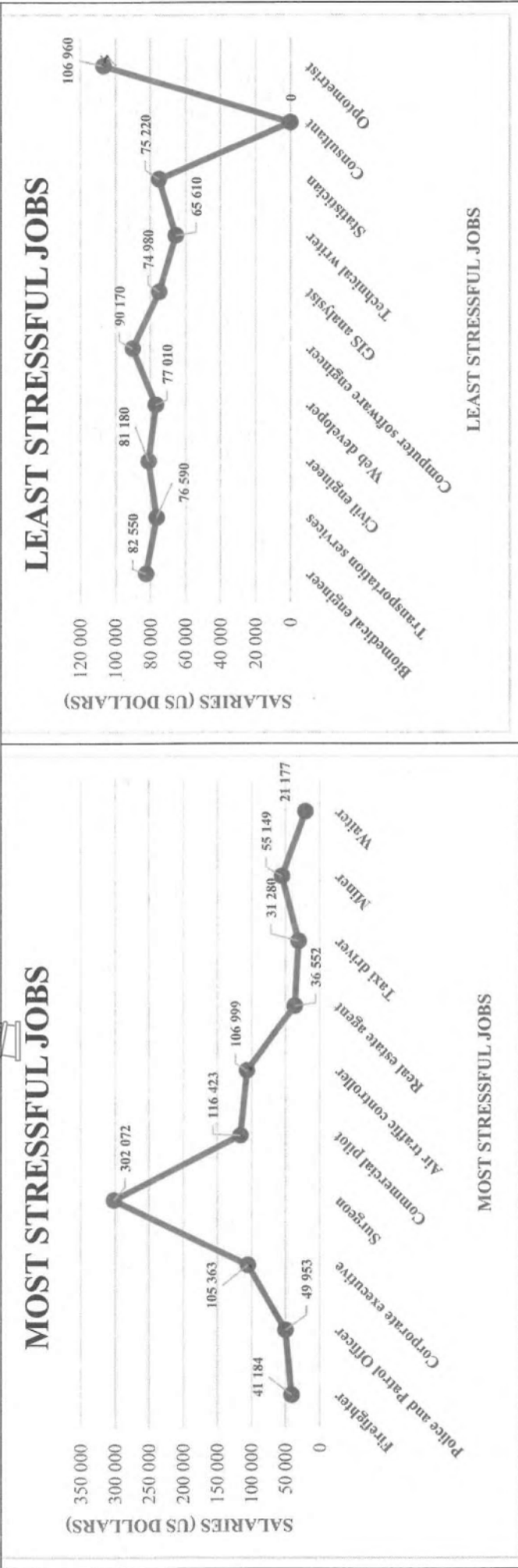
TOTAL: 100

[28]

QUESTION 4.1

ANNEXURE A

TABLE: MOST AND LEAST STRESSFUL JOBS WITH THEIR SALARIES (IN US DOLLARS)

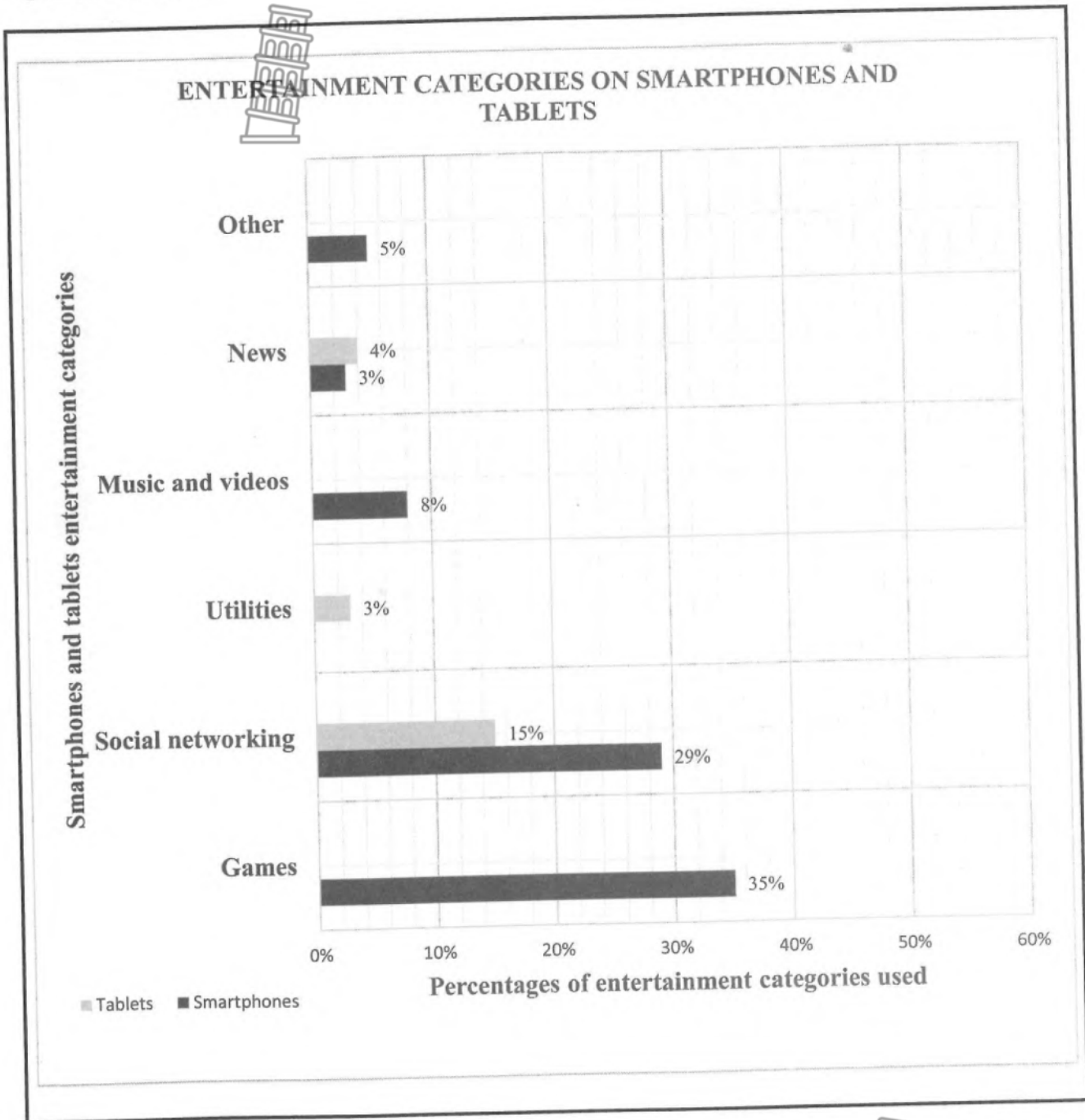


ANSWER SHEET 1

NAME OF LEARNER:

GRADE:

QUESTION 3.2.2





NATIONAL SENIOR CERTIFICATE

GRADE 12

JUNE 2023

MATHEMATICAL LITERACY P1 MARKING GUIDELINE

MARKS: 100

Symbol	Explanation
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT	Reading from a table/graph/document/diagram
SF	Correct substitution in a formula
O	Opinion/Explanation
P	Penalty, e.g. for no units, incorrect rounding off, etc.
R	Rounding off
NPR	No penalty for correct rounding
AO	Answer only
MCA	Method with constant accuracy
RCA	Rounding consistent with accuracy




This marking guideline consist of 9 pages.

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out (cancelled) an attempt to a question and NOT redone the solution, mark the crossed out (cancelled) version.
- Consistent accuracy (CA) applies in ALL aspects of the marking guidelines; however it stops at the second calculation error.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra item presented.

QUESTION 1 [20 MARKS]			
Ques.	Solution	Explanation	T&L
1.1.1	$\frac{6,5}{100} \checkmark \text{MA}$ $= \frac{13}{200} \checkmark \text{A}$	1MA dividing 6,5 by 100 1A common fraction (2)	D L1 E
1.1.2	Learners who did not go = $200 \times 6,5\% \checkmark \text{MA}$ $= 13 \checkmark \text{A}$ Learners went = $200 - 13$ $= 187 \checkmark \text{A}$ OR % went = $100\% - 6,5\%$ $= 93,5\% \checkmark \text{MA}$ Learners went = $200 \times 93,5\% \checkmark \text{A}$ $= 187 \checkmark \text{A}$	1MA multiply by 6,5% 1A learners who did not go 1A number of learners went 1MA % went 1M multiply by 93,5% 1A number went (3)	D L1 E
1.1.3	$187 : 200 \checkmark \text{RT} \checkmark \text{CA}$	1RT correct values in ratio form 1A simplified ratio form (2)	D L1 E
1.1.4	$6,5\% \checkmark \checkmark \text{A}$	2A correct percentage (2)	P L1 E




1.2.1	David = 25 ✓A Sam = 30 ✓A	1A 1st age 1A 2nd age (2)	F L1 M
1.2.2	DAVID $= \frac{30}{55} \times R409\ 750$ ✓M  = R223 500 ✓CA SAM $\frac{25}{55} \times R409\ 750$ = R186 250 ✓CA	1M multiplying correct fraction 1CA Simplification answer 1CA Sam's answer (3)	F L1 M
1.3.1	VAT – Value Added Tax ✓✓ A	2A explanation (2)	F L1 E
1.3.2	R0,00 ✓✓A	1RT correct values used 1CA answer (2)	F L1 E
1.3.3	Total amount = R38,99 × 15 ✓M = R584,85 ✓A	1M multiply by 15 1A total amount (2)	F L1 E
		[20]	



QUESTION 2 [31 MARKS]			
Ques.	Solution	Explanation	T&L
2.1.1	R17 000 ✓✓ RT	2 RT correct value (2)	F L1 E
2.1.2	R18 650 - R17 000 ✓M✓RT = R1 650 ✓CA	1RT correct values 1M subtracting correct values 1CA correct amount (3)	F L2 E
2.1.3	✓✓O When the accident occurs or the car get stolen then they can get their car fixed/replaced as soon as possible.	2O relevant reason (2)	F L4 M
2.1.4	Company A = $2\,340,90 + 3 \times (950 - 600)$ ✓SF = R3 390,90 ✓CA Company B = R3 220,65 ✓RT Valid statement ✓O	1SF substitution 1M getting used km 1CA total interest 1RT company B amount 1O opinion (5)	F L4 M
2.1.5	The cars were in demand during 5th to 7th ✓✓A	2R acceptable reason (2)	F L4 M
2.2.1	South African Revenue Services ✓✓A	2A correct answer (2)	F L1
2.2.2	7 ✓✓RT	2RT correct value (2)	F L1 E
2.2.3	$42\,678 + 26\% \text{ of } (370\,500 - 237\,100)$ ✓SF = $42\,678 + 26\% \text{ of } 133\,400$ ✓S = $42\,678 + 33\,046$ ✓A = R77 362	1SF substitution 1S simplification 1A correct values (3)	F L3 D
2.2.4	✓✓RT Tax rebate is an amount of money by which SARS reduces the actual taxes owing, depending on age.	2A explanation (2)	F L1 E

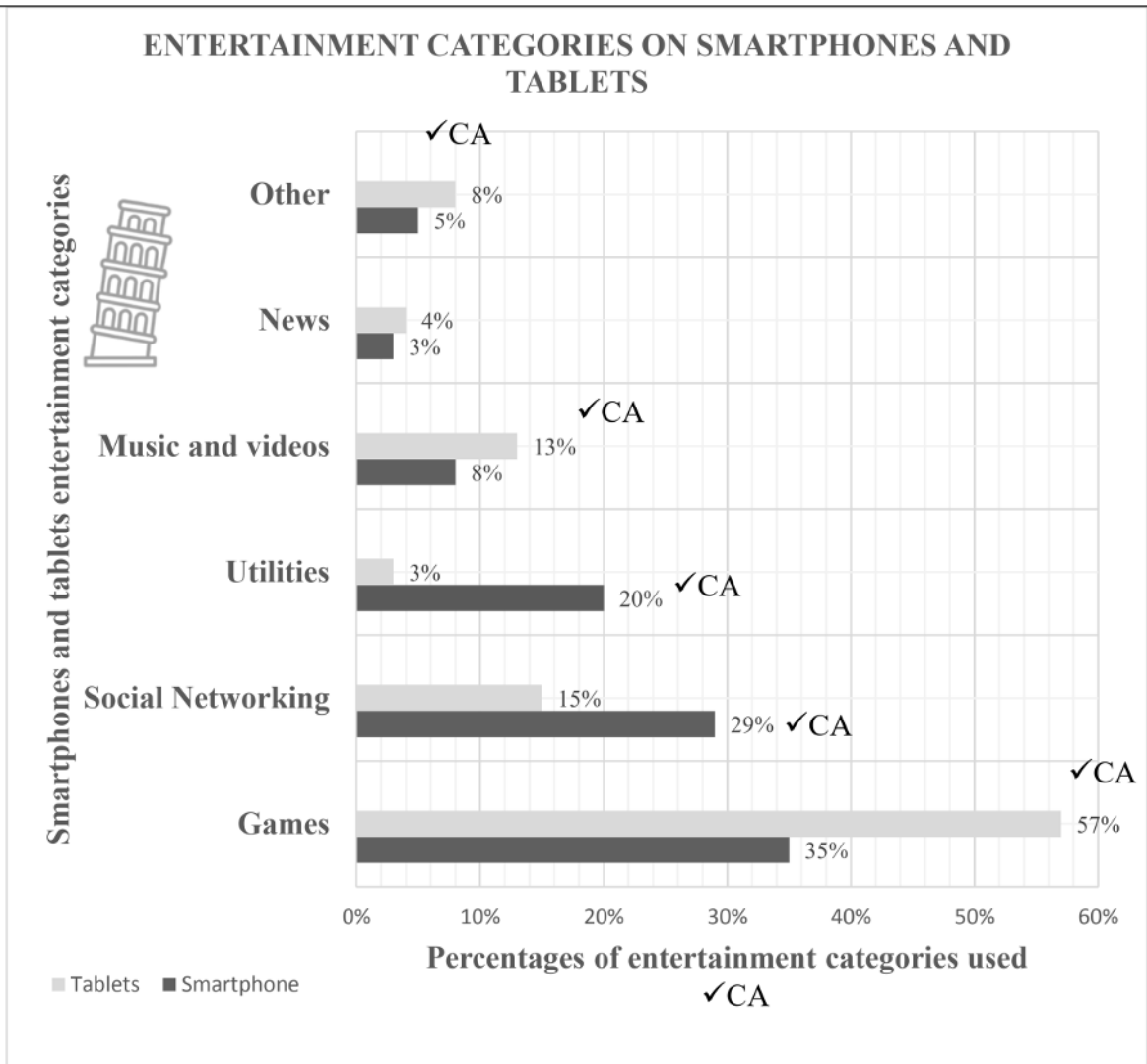
2.2.5	<p>Taxable income = R34 447,22 × 7,5% = R2 583,54 ✓A = R34 447,22 – R2583,5415 ✓A = R31 863,6785 × 12 ✓A = R382 364,142 = R77 362 + 31% (382 364,14 – 370 500) ✓SF = R77 362 + 31% (11 864,14) = R77 362 + R3 677,88 = R81 039,88 – R16 425 ✓S = <u>R64 614,88</u> ✓M 12 = R5 384,57 – (347 × 2 + 234 × 2) ✓CA = R4 222,57 Invalid ✓O</p>	<p>1A pension fund value 1A subtracting pension fund 1A multiply by 12 1CA taxable annual income 1SF substituting to the correct bracket 1S subtracting rebate 1M divide by 12 1CA monthly tax contribution 1O opinion</p>	<p>F L4 M</p> <p>(8)</p> <p>[31]</p>
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QUESTION 3 [21 MARKS]			
Ques.	Solution	Explanation	T&L
3.1.1	June 2020 ✓RT 	1RT month 1RT year (2)	D L1 E
3.1.2	1 097 000 1 000 000 ✓A	1RT correct value with '000' 1A nearest million (2)	D L2 M
3.1.3	$\text{Percentage change} = \frac{1\ 039\ 000 - 1\ 036\ 000}{1\ 036\ 000} \times 100\%$ = 0,29% = 0,3% ✓CA	✓M ✓SF 1M difference 1SF substitution 1S simplification 1CA percentage (4)	D L3 M
3.1.4	No modal value ✓✓ A	2A correct answer (2)	D L2 M
3.1.5	Retirement age ✓✓ A Death	2A (2)	D L4 M
3.1.6	That shows that the values are negative. ✓✓R	2O correct reason (2)	D L4 M
3.2.1	$C = 100\% - (15\% + 3\% + 13\% + 4\% + 8\%)$ = 100% - 43% ✓ = 57% ✓	1M subtracting from 100% 1S simplification 1CA games percentage (3)	D L2 M



3.2.2



1A plotting Other (8%) value correctly
 1A plotting Music and videos (13%) value correctly
 1A plotting utilities value (20%) correctly
 1CA (from 3.2.2) plotting games value (57%) correctly

(4)

[21]



QUESTION 4 [28 MARKS]			
Ques.	Solution	Explanation	T&L
4.1.1	Pie chart OR ✓✓A Bar graph	2A type of graph (2)	D L1 E
4.1.2	Biomedical engineer ✓✓RT Surgeon	2A names of health-related jobs (2)	D L1 E
4.1.3	✓A $\frac{12}{20} \times 100$ ✓M 20 ✓A = 60% ✓CA	1A numerator and 1A denominator 1M multiply by 100 1CA correct percentage (4)	P L2 M
4.1.4	✓RT $106\,960 \times R18,42$ ✓RT = 1 970 203,20 ✓S = 2 000 000 ✓R	1RT correct value 1M multiply by R18,42 1S simplification 1R rounding (4)	F L3 M
4.2.1	✓RT $5309,21 \times 100$ ✓M = 530 921 cents ✓CA = Five Hundred and Thirty Thousand Nine Hundred and Twenty One cents. ✓CA	IRT correct value 1M multiply correct value by 100 1CA answer in cents 1CA answer in words (4)	F L1 E
4.2.2	Admin fee = $5\,309,21 - (4\,529,86 \times 1,15)$ ✓RT ✓M = 99,87 ✓CA Admin fee % = $\frac{99,87}{5\,309,21} \times 100$ ✓M = 1,88% ✓CA	2RT correct 1CA admin fee 1M divide correct values and multiply by 100 1CA admin fee percentage (5)	F L2 D
4.2.3	R5 309,21 ÷ 12 ✓M = R442,43 ✓S = R442 ✓CA	1M divide by 12 1CA correct monthly value 1CA monthly premium (3)	F L2 E



Ques.	Solution	Explanation	T&L
4.2.4	$= R4\ 529,86 \times 15\%$ $= R679,48 \quad \checkmark CA$ $= R99,87 - (R99,87 \div 1,15)$ $= R13,03 \quad \checkmark CA$ VAT amount = $R679,48 + R13,03 \quad \checkmark CA$ $= R692,51 \quad \checkmark CA$ <p style="text-align: center;">OR</p> $R5\ 309,21 \div 1,15 \quad \checkmark M$ $= R4\ 616,70 \quad \checkmark CA$ VAT amount = $R5\ 309,21 - R4\ 616,70 \quad \checkmark M$ $= R692,51 \quad \checkmark CA$	1CA multiply by 15% 1CA subtotal VAT amount 1CA VAT on admin fees 1CA adding two VAT values 1CA total VAT amount 1M divide by 1,15% 1CA answer 1M subtracting correct values 1CA answer (4)	F L3 D
		[28]	
TOTAL: 100			

