HILLCREST HIGH SCHOOL

Mathematical Literacy

Examination

Gr 12 Paper 1

JUNE 2022

Examiner: Mrs. Leuschke **Moderator: Mrs. Jugmohan**

MARKS: 100 **TIME: 2 hours**

NAME :				
TEACHER:				
Q1	Q2	Q3	Q4	TOTAL

INSTRUCTIONS AND INFORMATION:

Read the following instructions carefully before answering the questions.

1. This question paper consists of 4 questions and 12 pages.
2. Clearly show ALL calculations, diagrams, graphs, etc which you have used to determine your answers.
3. Answers only will NOT necessarily be awarded full marks.
4. An approved scientific calculator (non-programmable) may be used, unless otherwise stated.
5. If necessary, answers should be rounded off to TWO decimal places, unless otherwise stated, or appropriately within the given context.
6. Number the answers EXACTLY as the questions are numbered.
7. Diagrams are not necessarily drawn to scale.
8. It is in your own interest to write legibly and to present your work neatly.

Question 1

James bought a double bed on lay-by for R4800. He paid a deposit of R1200 and opted to pay instalments of R400 each month to complete the balance of R3600.

1.1.1 Express the deposit as a percentage of the lay-by purchase price. (2)

1.1.2 Determine the number of months to complete paying for the balance. (3)

1.1.3 Calculate the balance amount after James paid the deposit and seven instalments. (3)

1.2 Morgan started an online clothing store. The t-shirt was designed in association with The Saartjie Baartman Centre for Women and Children to make people aware of women and children abuse. Below are the cost structures for this t-shirt.

Price of the t-shirt from the supplier	R60
Printing and labelling	R45
Packaging	R5
Selling price of one t-shirt	R176

1.2.1 Write down the ratio of the price from the supplier to the selling price in the simplest form. (2)

1.2.2 Write down the cost price Morgan must pay to get the t-shirt ready for sale. (2)

1.2.3 Calculate the profit she will make on one t-shirt. (2)

1.2.4 As a special during Woman's Month, she runs a promotion on Facebook with a 15% discount. Calculate the cash discount. Round off to the nearest whole number. (3)

1.3 Morgan makes and packages 25 T-shirts, but she only sells 15.

1.3.1 What are Morgan's total expenses? (2)

1.3.2 How much will Morgan make from selling the 15 T-shirts? (2)

1.3.3 Does Morgan make a profit or a loss? Show calculations to support your answer. (3)

[24]

Question 2

Danielle is a 48 year old female who works for MK Designs. She earns a gross salary of R45 600,50 per month. She contributes 7,5% of her salary towards her pension fund and she contributes R6450 each month to medical aid for herself and her husband. The tax table below is for individuals for the year March 2021 – February 2022.

TAXABLE INCOME ®	**RATES OF TAX**
R0 – R216 200	18% of taxable income
R216 201 – R337 800	38 916 + 26% of taxable income above 216 200
R337 801 – R467 500	70 532 + 31% of taxable income above 337 800
R467 501 – R 613 600	110 739 + 36% of taxable income above 467 500
R613 601 – R 782 200	163 335 + 39% of taxable income above 613 600
R782 201 – R1 656 600	229 089 + 41% of taxable income above 782 200
R 1 656 601 and above	587 593 + 41% of taxable income above 1 656 600
TAX REBATES	
Below age 65	R14 958
Age 65 to below 75	R8 199
Age 75 and over	R2 736
TAX THRESHOLDS	
Below age 65	R83 100
Age 65 to below 75	R128 650
Age 75 and over	R143 850
MONTHLY MEDICAL TAX CREDITS	
Principal member	R319
First dependent	R319
Each additional dependent	R215

2.1 Calculate Danielle's gross annual income. (2)

2.2 Calculate her annual taxable income. (4)

2.3 Calculate the annual medical tax credits. (2)

2.4 Calculate the amount of tax that she has to pay monthly. (8)

2.5 Explain the impact of the tax rebate and the medical tax credits on the annual tax payable. (2)

2.6 Danielle tells her husband that she only gets and amount of R25 560 paid into her bank account after deductions. Verify, showing all calculations, whether or not she is correct. (5)

[23]

Question 3

3.1 The ages (in years) of senior citizens on a bus tour are as follows:

Males	63	76	70	82	65	79	61	75	68	71	66			
Females	66	89	74	73	62	77	82	64	78	91	90	77	65	82

3.1.1 Is the data discrete or continuous? Give a reason for your answer. (3)

3.1.2 How many people went on the tour altogether? (2)

3.1.3 Calculate the mean for the females. (3)

3.1.4 Determine the modal age for the whole tour group. (2)

3.1.5 Calculate the interquartile range for the whole tour group. (5)

3.2 Tuberculosis (TB) is a lung disease found all over the world. The table below is an extract from the World Health Organisation (WHO) report of 2019.

Region	Numbers measured in thousands	Per 100 000 of the population
Africa	2 573	356
The Americas	373	41
Eastern Mediterranean	645	122
Europe	445	50
South-East Asia	2 967	182
Western Pacific	1 924	111
Global	**8 918**	**140**

3.2 1 Calculate is the range of the infection incidences per 100 000 of the population. (2)

3.2.2 The infection rate in the Americas was 41 per 100 000. How many cases would you estimate for a single South American Country which had a population of 2 250 000 people? (3)

3.2.3 The WHO states that if there was a global reduction of 10% in the number of cases of TB by the end of 2020, there would have been 8 026 000 cases. Verify, showing all calculations, whether or not they are correct. (4)

[24]

Question 4

Table 1 below is a loan factor table that shows the monthly repayments per R1 000 on a home loan with interest rates ranging from 9,75% to 11,25% per annum, over 15, 20, 25 or 30 years. Magda is planning on buying a house and she has a disposable income of R18 570 per month. The National Credit Act (NCA)stipulates that the home loan amount that a person qualifies for should be calculated based on the disposable income.

Table 1: Loan factor table for calculating monthly repayments on a home loan per R1 000

Interest %	**Years**			
	15	**20**	**25**	**30**
9.75%	10.59	9.49	8.91	8.59
10.00%	10.75	9.65	9.09	8.78
10.25%	10.90	9.82	9.26	8.96
10.50%	11.05	9.98	9.44	9.15
10.75%	11.21	10.15	9.62	9.33
11.00%	11.37	10.32	9.80	9.52
11.25%	11.52	10.49	9.98	9.71

4.1 Define the term monthly payment. (2)

4.2 Write down the loan factor if Magda decides to pay her monthly repayments over a 25 year period at an interest rate of 10,75%. (2)

4.3 Calculate the maximum loan amount she qualifies for if she wants to take a loan over 30 years at an interest rate of 11,25% per annum. Use the formula below:

LOAN AMOUNT = (MONTHLY REPAYMENT ÷ LOAN FACTOR) x1000 (3)

4.4 Give one possible reason why it would NOT be advisable for her to take the full maximum she qualifies for. (2)

4.5 Magda's uncle is also planning to buy a house and takes out a home loan from STL Bank. He must pay equal monthly payments for 20 years as shown in Table 2 below.

Table 2: Home loan from STL Bank

Loan amount	R1 250 000
Loan period in years	20
Annual interest rate	11 %
Loan factor	10.32
Total repayment	

Use the formula :

MONTHLY REPAYMENT (IN RAND) = (LOAN AMOUNT ÷ 1000) X LOAN FACTOR

Calculate the total repayment that must be paid after 20 years by Magda's uncle. (4)

4.6 Mrs Jugmohan needs to but a new laptop. The laptop costs R7 999 (excluding VAT). She obtained a loan for R6 000 from Quick Loans.

* She makes monthly payments of R384,42 for 3 years.

* The monthly payment excludes the monthly service fee of R65 per month and a monthly balance-protections insurance fee of R26,50.

* VAT is charged at 15%.

4.6.1 Show that the cost of the laptop including VAT is R9 198,85. (2)

4.6.2 Determine the total monthly amount that she will have to pay for the loan. (2)

4.6.3 Mrs. Jugmohan says that she will pay almost R3000 more for the laptop by taking a loan rather than paying cash for it. Verify, showing all calculations, whether or not she is correct. (4)

4.6.4 Calculate the amount of interest that she will pay for this loan. (3)

4.7 Mrs Jugmohan decides to play the lotto. There are 59 numbers in the National Lotto. The numbers that she chooses are shown below.

15	24	48	29	37	19	52

4.7.1 What is the probability of Mrs Jugmohan selecting an odd number? Give your answer as a percentage. (3)

4.7.2 Mrs Jugmohan stated that from the 7 numbers she picked, more than 50% were above 25. Verify whether or not this is true showing all calculations. (2)

[29]