

HILLCREST HIGH SCHOOL



Mathematical Literacy  
Grade 12  
June 2021

Examiner: Mrs Leuschke  
MARKS: 100

Moderator: Mrs. D Lourens  
TIME: 2 hours

NAME : \_\_\_\_\_

TEACHER : \_\_\_\_\_










INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.





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

**QUESTION 1**

The weather forecast for Cape Town for the period 1 to 9 June 2017 is shown below.

MON.	TU.	WED.	TH.	FRI.	SAT.	SUN.
			1	2	3	4
						
			19 °C	26 °C	22 °C	21 °C
			9 °C	7 °C	11 °C	6 °C
5	6	7	8	9		
						
20 °C	14 °C	15 °C	15 °C	16 °C		
9 °C	9 °C	7 °C	3 °C	8 °C		

KEY	
	Sunny
	Cloudy
	Rain
	Rain and lightning
35 °C	Max. temp.
7 °C	Min. temp.

[Source: [www.wunderground.com](http://www.wunderground.com)]

Study the information above and answer the questions that follow.

1.1 Identify the maximum temperature for Friday 2 June 2017. (2)

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1.2 Write down the full date on which the lowest minimum temperature was measured. (2)

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1.3 Arrange the maximum temperatures in descending order. (2)

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1.4 Determine the date when there was rain and lightning. (2)

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1.5 Calculate the range of the minimum temperatures. (2)

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1.6 If the 1<sup>st</sup> of June was on a Thursday, on which day of the week will the 30<sup>th</sup> of June fall? (2)

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## QUESTION 2

Use ANNEXURE A to answer the questions that follow.

2.1 Briefly explain the difference between employer and employee. (2)

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2.2 Determine the value of A, the NET salary received by Mr Shezi for December. (3)

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2.3 What does UIF stand for? (2)

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2.4 Show how the UIF contribution of R82,36 was calculated. (2)

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2.5 Mr Shezi claims that the cumulative medical aid contributions indicated on his salary advice is incorrect. Verify using calculations, whether his claim is valid. (3)

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### QUESTION 3

Susan is a 47 year-old female who works for MK Designs. She earns a basic monthly salary of R45 600,50. She contributes 7,5% of her basic monthly salary towards her pension fund and she pays R6450 to the medical aid monthly, for her husband and herself.

Annexure A is a tax table for individuals for the tax year March 2018 – February 2019. The tax table shows different income rates for individuals with different taxable income for 2018/2019. Use ANNEXURE B to answer the following questions.

3.1 Calculate Susan's gross annual income for the 2018/2019 year. (2)

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3.2 Calculate Susan's gross annual taxable income. (3)

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3.3 Calculate the annual medical tax credits which Susan qualifies for. (2)

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3.4 Hence, calculate her annual tax payable for the year ending February 2019. (7)

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

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3.6 Susan's uncle is 70 years old and earns the same amount of money as her and has the same taxable income. He does not have a medical aid. He says that he pays the same amount of tax as she does. Verify, showing all calculations, whether or not he is correct. (4)

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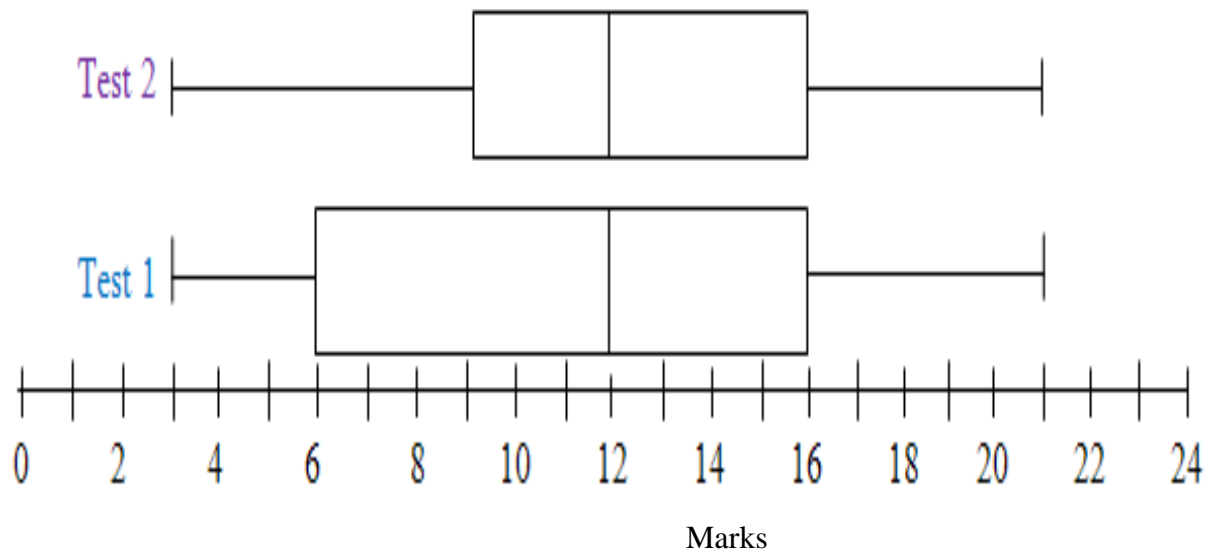
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#### QUESTION 4

Mrs Steyn of Hilltop High School started a new section in Maths Literacy. She gave the learners a test (Test 1) before they started the new section to see how much knowledge they had. She then gave them another test (Test 2) after the section had been taught. There were 138 learners who wrote both tests. The results are shown in the Box and Whisker diagram below.



4.1 Complete the table below showing the five number summary Test 2. (3)

	Marks on test 1
First Quartile	
Median	
Third Quartile	

4.2 How many learners were above 6 in Test 1? (2)

4.3 Comment on the differences between the two sets of data and state on which test the learners performed better. Give a reason for your answer. (3)

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### QUESTION 5

A cylindrical barrel (drum) contains 42 gallons of oil. The diameter of this barrel is 18 inches.

PICTURE OF A BARREL/DRUM:



You may use the following information:

$$1 \text{ gallon} = 3,78541 \text{ litres}$$

$$1 \text{ inch} = 2,54\text{cm}$$

$$1\text{ml} = 1 \text{ cm}^3$$

$$\text{Volume} = \pi \times r^2 \times h, \text{ let } \pi = 3,142$$

$$\text{Surface area of cylinder with a closed lid and base} = (2 \times \pi \times r^2) + (2 \times \pi \times r \times h)$$

5.1 Determine the radius of a barrel (drum) in centimetres. (3)

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5.2 The advertisement for the drum states that the height of the drum is 96,83cm. Verify, showing ALL calculations, whether or not the advertisement is correct. (5)

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5.3 Calculate the surface area of this barrel in m<sup>2</sup>. (5)

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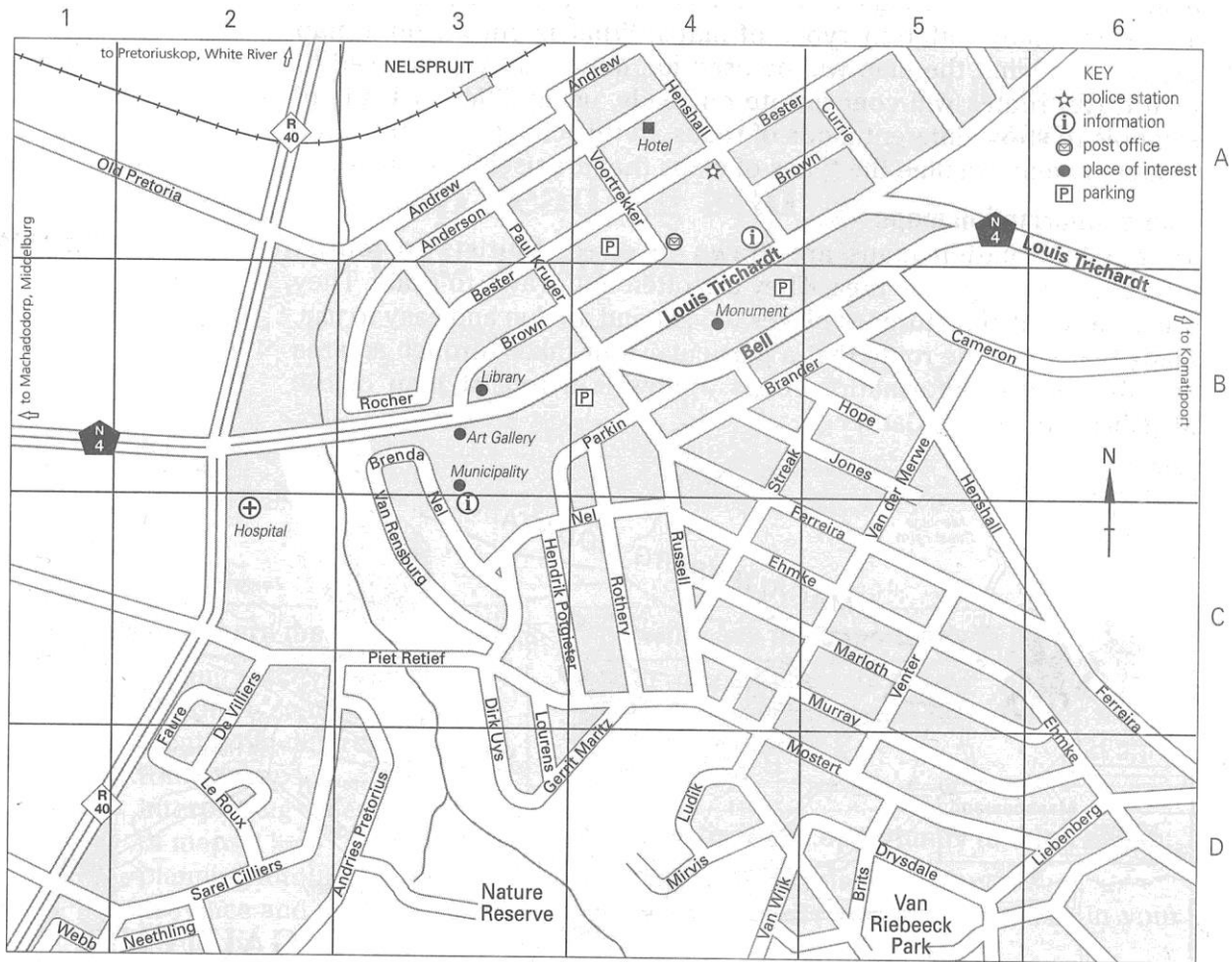
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## QUESTION 6

The following questions are based on the following Nelspruit street map:



6.1 What is the grid reference of the Nature Reserve?

(2)

6.2 Your friend, Fred, is at the post office. He needs your help to get to the municipality. Give Fred clear and complete directions. Use compass directions, road names and significant landmarks to make your directions easier to follow. (5)

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6.3 In what direction is the Monument from the Nature Reserve? (2)

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6.4 If you drive along Bester Street from the police station, which way must you turn to get into Currie Street? (2)

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6.5 Which road would you take to get to Komatipoort? (2)

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6.6 What landmark will you pass if you travel north along the R40 from D1 to A2? (2)

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You and Fred are going on a road trip. The following table is a record of how far you travel:

Day	Kilometres travelled
Monday	480
Tuesday	374
Wednesday	396
Thursday	431
Friday	319

6.7 What is the average distance travelled per day? (3)

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6.8 Fred indicated that the distance travelled on Thursday and Friday as a percentage of the total distance travelled was 40%. Verify, showing all calculations whether his is correct. (4)

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6.9 If you spent 5 hours driving on Monday, what was your average speed? (2)

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6.10 Convert your answer for question 6.9 into metres per second. (3)

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QUESTION 7

7.1 Why is the BMI of children referred to as age and gender specific? (2)

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7.2 Answer the questions below using the table below and the Growth Chart on ANNEXURE C.

<b>Weight status category</b>	<b>Percentile range</b>
Underweight	Less than the 5 <sup>th</sup> percentile
Healthy weight	5 <sup>th</sup> percentile to less than the 85 <sup>th</sup> percentile
Overweight	85 <sup>th</sup> to less than the 95 <sup>th</sup> percentile
Obese	Equal to or greater than the 95 <sup>th</sup> percentile

7.2.1 What is the percentile of a 7 year old boy with a BMI of 17,5kg/m<sup>2</sup>? Can you conclude that this boy is obese? Give a reason for your answer. (3)

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7.2.2 Your friend is a 15 year old boy who has a BMI of 28kg/m<sup>2</sup>. He states that he is in the healthy range. Verify, with reasons, whether or not he is correct. (3)

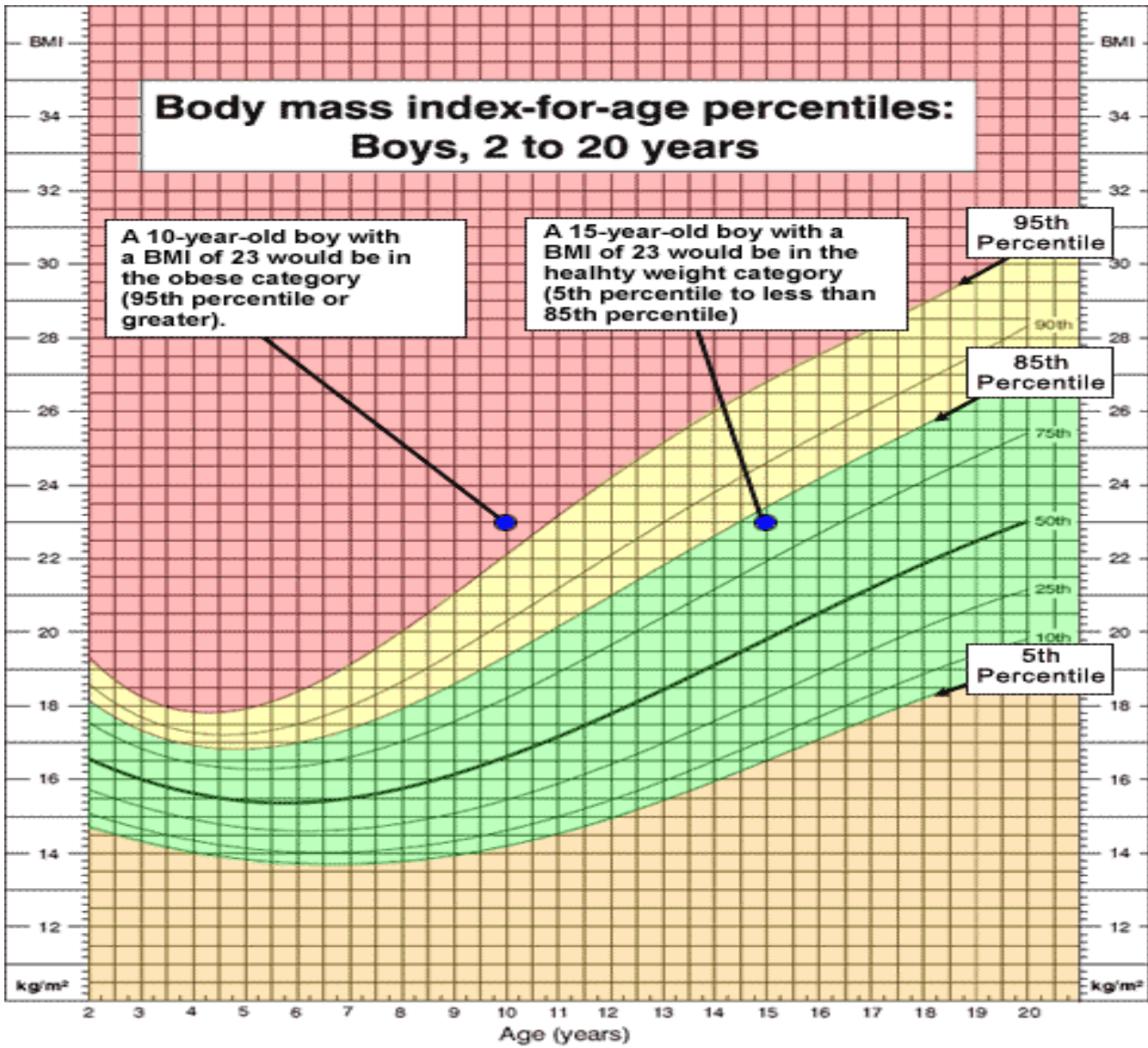
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# ANNEXURE C



# ANNEXURE A

Salary advice for December 2019

SALARY ADVICE			
EMPLOYER		PERIOD	PAYMENT DATE
Fusion Industries PO Box 4325 Bramley 2000		10	31 / 12 / 2019
Name of Employee: Mr Andile Shezi		Identity number: 670914 5234 086	Employee number: 2007041235
Tax Number: 538672901	Number on Medical Aid : Adult: 2 Children: 1	Bank & Account nr: ABSAXXXXXXXXXX XXXX2435	Pension Nr: 78554902
INCOME		DEDUCTIONS	
Basic Salary	R 8 236,00	PAYE	R 402,45
		UIF	R 82,36
		Pension Fund	R 617,70
		Medical Aid contribution	R 1 764,00
		<b>TOTAL DEDUCTIONS</b>	
<b>GROSS SALARY</b>	<b>R 8 236</b>	<b>NET SALARY</b>	<b>A</b>
IRP5 PARTICULARS – cumulative year to date			
Income (PAYE)	R 82 360,00	Total Employee's Tax	4024,50
Current pens. contr.	R 6177,00	Pension fund contr	6177,00
Medical Tax credit		Gross retirem income	82 360,00
		Medical Aid contr	15 876,00

## ANNEXURE B

<b>TAXABLE INCOME ®</b>	<b>RATES OF TAX</b>
R0 – R195 850	18% of taxable income
R195 851 – R350 850	35 253 + 26% of taxable income above 195 850
R305 851 – R423 300	63 853 + 31% of taxable income above 305 850
R423 301 – R 555 600	100 263 + 36% of taxable income above 423 300
R555 601 – R 708 310	147 891 + 39% of taxable income above 555 600
R708 311 – R1 500 000	207 448 + 41% of taxable income above 708 310
R 1 500 001 and above	532 041 + 41% of taxable income above 1 500 000
<b>TAX REBATES</b>	
Below age 65	R14 220
Age 65 to below 75	R7794
Age 75 and over	R2601
<b>TAX THRESHOLDS</b>	
Below age 65	R79 000
Age 65 to below 75	R122 300
Age 75 and over	R136 750
<b>MONTHLY MEDICAL TAX CREDITS</b>	
Principal member	R310
First dependent	R310
Each additional dependent	R209