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NATIONAL
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GRADE 12

MATHEMATICAL LITERACY

COMMON TEST
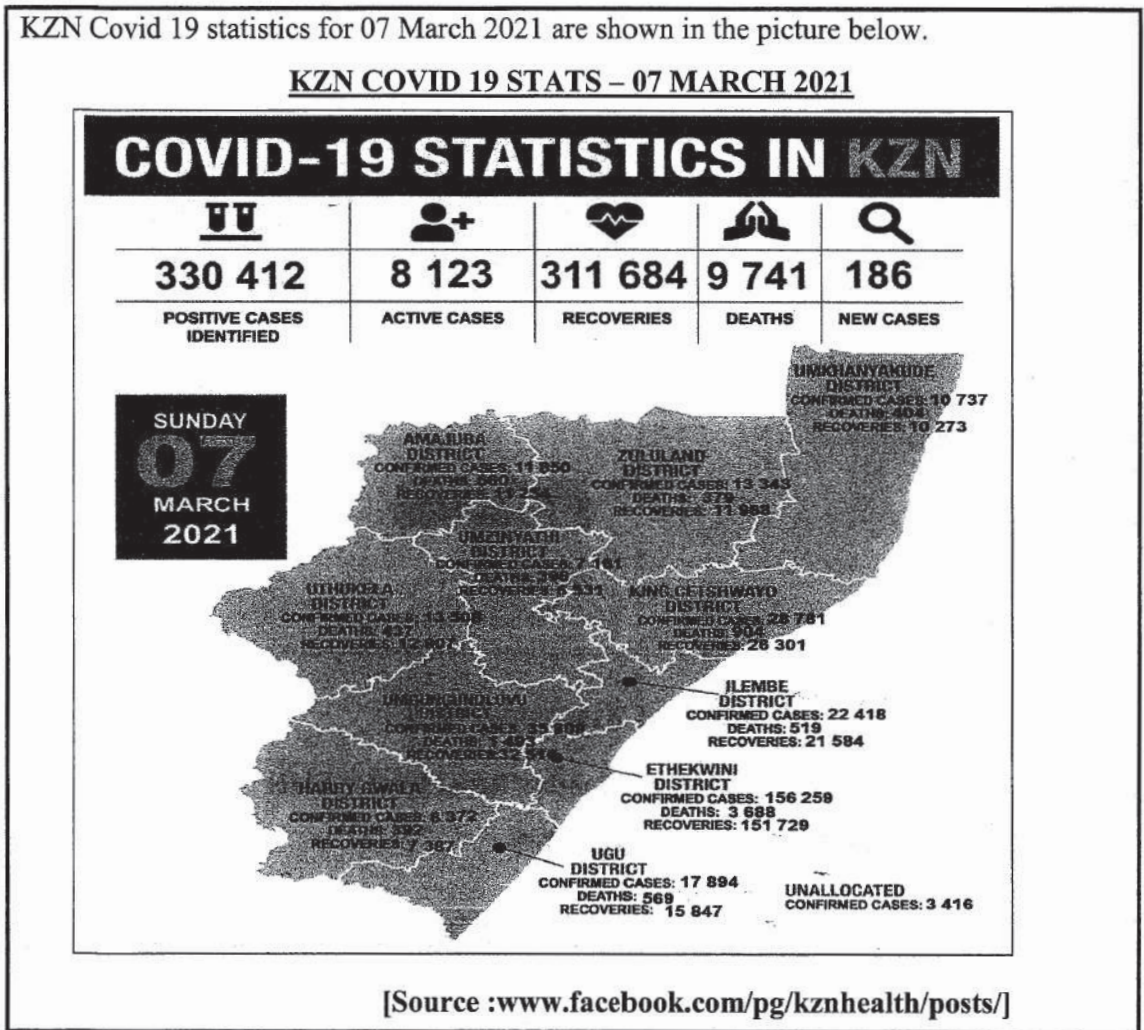
APRIL 2021

MARKS: 100

TIME: 2 hours

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

INSTRUCTIONS AND INFORMATION

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

2.   The question paper consists of one ANNEXURE and one ANSWER SHEET.

      2.1   Use the **ANNEXURE** for QUESTION 2.1.

      2.2   Use the **ANSWER SHEET** for QUESTIONS 2.2.2 and 2.2.3.

      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 approximately according to the given context, unless stated otherwise.

8.   Indicate units of measurement, where applicable.

9.   Write neatly and legibly.

QUESTION 1

1.1

KZN Covid 19 statistics for 07 March 2021 are shown in the picture below.

KZN COVID 19 STATS – 07 MARCH 2021

[Source :www.facebook.com/pg/kznhealth/posts/]

Use the given information above to answer the questions that follow.

1.1.1	Is the data above numerical or categorical?	(2)
1.1.2	Arrange the number of deaths in the province in ascending order.	(2)
1.1.3	How many districts are shown in the picture above?	(2)
1.1.4	Which district has biggest number of confirmed cases? Write down the name of the district and the number of its confirmed cases.	(2)
1.1.5	What was the minimum number of recorded recoveries in the province on the 7th of March 2021?	(2)

1.2

> Trevin wants to buy a house. He got onto the internet and used Standard Bank home loan calculator to check the loan he qualifies for. Given below is an extract from the home loan calculator.
>
> **How much can you afford to borrow?**
>
> MONTHLY INCOME BEFORE DEDUCTIONS
> R 23500
> + Add co-applicant's income >
>
> MONTHLY EXPENSES
> R 6041
> Help me calculate expenses >
>
> VARIABLE INTEREST RATE
> 10
> ―――――――――― %
>
> LOAN TERM IN YEARS
> 20
> ―――――――――― Years
>
> CALCULATE
> Reset >
>
> You could borrow up to
> R 730 554
>
> Your estimated monthly repayment will be
> R 7 050
>
> APPLY NOW   ENQUIRIES
>
> T&Cs for individuals >
> T&Cs for legal entities >
>
> **Real Cost of the Loan = RCL**
>
> **Estimated Monthly Repayment = EMR**
>
> **Loan Amount = LA**
>
> [Source: www.standardbank.co.za]

Use the information above to answer the following questions.

1.2.1	Convert the loan term to months.	(2)
1.2.2	Calculate what the real cost of the loan (RCL) will be. You may use the formula: **RCL = EMR × Loan term in months**.	(2)
1.2.3	What is the total interest that will be charged on the loan amount (LA) of R730 554? You may use the formula: **Total interest = RCL – LA**.	(2)
1.2.4	Calculate the monthly interest on the loan.	(2)
1.2.5	How much of the estimated monthly repayment goes towards servicing the principal on the loan amount of R730 554?	(2)
		[20]

QUESTION 2

2.1

> Mr N. Biyela's electricity statement for 18 January 2021 to 15 February 2021 is shown on the ANNEXURE A.

Carefully study the statement in the ANNEXURE A and answer the following questions.

2.1.1   Calculate the electricity consumption (**A**).   (2)

2.1.2   Use your answer from **2.1.1** and the given rate per kWh to calculate the current month's charges (**B**) in rand, excluding 15% VAT.   (3)

2.1.3   Calculate the total current month's charges (**C**).
You may use the formula: **Total = B – Sub total + VAT**   (2)

2.2

> Mr Eric owns a barbershop and employs two barbers, each earning R5 500 per month. Other monthly fixed costs amount to R8 200 per month. On average, each barber does 20 haircuts per day and they work from Monday to Friday. A hair cut costs R50,00.

Use the given information above to answer the questions that follow.

2.2.1   Calculate the total monthly fixed cost for Mr Eric's shop.   (2)

2.2.2   Complete the total income values on the provided ANSWER SHEET.   (3)

2.2.3   The line graph for monthly fixed costs is drawn on the provided ANSWER SHEET. Draw the line graph for Total Income on the same answer sheet and mark the break-even point on your graph with **P**.   (3)

2.2.4   Mr Eric claims that if each barber does at least 20 haircuts a day, the total profit per month will exceed R12 500. Use calculations to verify his claim.
You may use the formula: **Profit = Total Income – Total Cost**.   (5)

2.3

> Maranatha Metal Polishing Company is based in Durban. Given below is the company's income and expenditure statement for December 2020.
>
> | INCOME (R) | | EXPENDITURE (R) | |
> |---|---|---|---|
> | National Products (Local) | 1 984 609 | Salaries | 1 362 912 |
> | International Products (Exports) | 3 055 713 | Overtime | 187 427 |
> | | | Fuel | 191 102 |
> | | | Repairs & Services | 115 346 |
> | | | Office Supplies | 1 891 |
> | | | Cleaning Materials | 5 007 |
> | | | Water & Electricity | 18 238 |
> | | | Rent | 47 311 |
> | | | | |
> | **TOTAL:** | **5 040 322** | **TOTAL:** | **1 929 234** |

Use the income and expenditure statement above to answer the following questions.

2.3.1   What percentage of total income is total expenditure? (3)

2.3.2   Due to Covid-19, the export earnings for the company fell by 75% in January 2021 and local earnings decreased by 47%.

Calculate the profit/loss for the company in January 2021. (7)

[30]

QUESTION 3

3.1

> Amahle is 32 years old and earns an annual taxable income of R425 648. She is married and pays medical aid for her husband and herself.
>
> TABLE 1 below indicates rates of tax for individuals for the Tax year 2020/2021
>
> **TABLE 1: 2021 TAX YEAR (1 MARCH 2020 - 28 FEBRUARY 2021)**
>
> | TAX BRACKET | TAXABLE INCOME (R) | RATES OF TAX (R) |
> | --- | --- | --- |
> | 1 | 1 – 205 900 | 18% of taxable income |
> | 2 | 205 901 – 321 600 | 37 062 + 26% of taxable income above 205 900 |
> | 3 | 321 601 – 445 100 | 67 144 + 31% of taxable income above 321 600 |
> | 4 | 445 101 – 584 200 | 105 429 + 36% of taxable income above 445 100 |
> | 5 | 584 201 – 744 800 | 155 505 + 39% of taxable income above 584 200 |
> | 6 | 744 801 – 1 577 300 | 218 139 + 41% of taxable income above 744 800 |
> | 7 | 1 577 301 and above | 559 464 + 45% of taxable income above 1 577 300 |
>
> **TAX REBATES**
>
> | Tax Rebate | |
> | --- | --- |
> | | **2021** |
> | Primary | R14 958 |
> | Secondary (65 and older) | R8 199 |
> | Tertiary (75 and older) | R2 736 |
>
> **MEDICAL AID CREDIT**
>
> | Per month (R) | 2021 |
> | --- | --- |
> | For the taxpayer | R319 |
> | For the taxpayer and one dependant | R638 |
> | For each additional dependant | R215 |
>
> [Adapted from:www.sars.gov.za]

Use TABLE 1 above to answer the questions that follow.

3.1.1   Name the tax bracket Amahle's annual taxable income falls into. (2)

3.1.2   Write down the tax rebate for the year and the monthly medical aid credit that Amahle qualifies for. (2)

3.1.3   Hence, calculate Amahle's monthly income tax payable. (8)

3.2

Use the information in TABLE 2 to answer the questions that follow.

Nkosi is flying to Johannesburg for business and wants to hire a car at the airport for 3 days. He has to choose from one of the two options. TABLE 2 below shows the two options available.

TABLE 2: COMPARISION OF CAR HIRE RENTAL FOR A SMALL CAR

OPTION 1		OPTION 2	
AVIS CAR HIRE		**BUDGET CAR HIRE**	
Volkswagen Polo or similar		**Renault Kwid or similar**	
Price for 3 days:	ZAR1 254,64	Price per day	ZAR 408,25
Mileage:	500 km per 3 day rental	Mileage:	200 km per day
Customer review:	8,8 excellent	Customer review:	7,8 very good

[Source: www.hippo.co.za]

3.2.1	Calculate the difference in mileage for 3 days between the two options.	(3)
3.2.2	Calculate the cost per day for Option 1.	(2)
3.2.3	Determine the cost per km for the Renault Kwid.	(2)
3.2.4	The cost per km for the Renault Kwid is 81,27 % of that of the Volkwagen Polo.	
	Verify, using a calculation if this is CORRECT.	(4)
3.2.5	Aside from cost, what other factor would influence Nkosi's choice?	(2)

[25]

QUESTION 4

4.1

The world population review rates the following countries in TABLE 3 below as having the highest rate of obesity in the world.

BMI (Body mass index) is a measure that may be used to determine if an individual's weight status is healthy.

TABLE 3: MOST OBESE COUNTRIES 2021

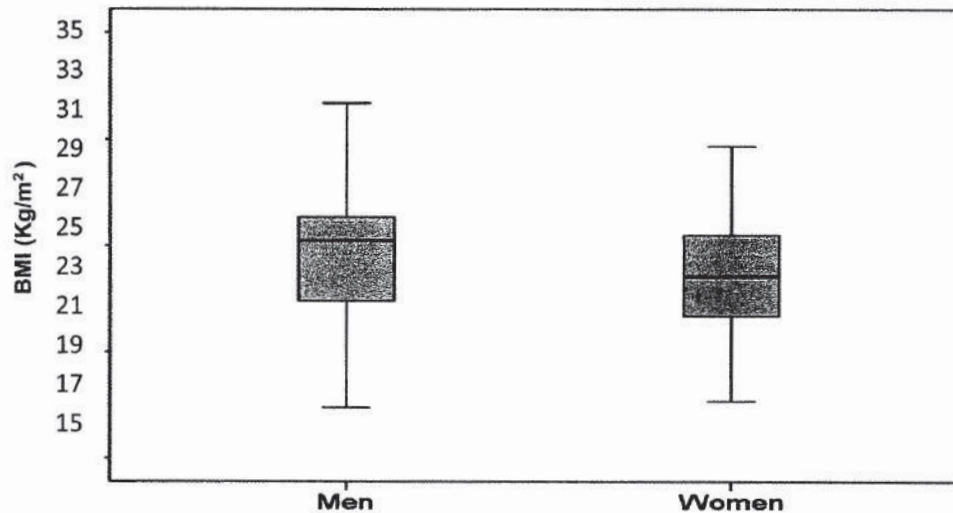| COUNTRY	OBESITY RATE	BMI	POPULATION 2021
American Samoa	74,60%	34,9	55 100
Tokelau	74,40%	Not given	1 373
Naura	61,00%	32,5	10 876
Cook Islands	55,90%	33	17 565
Palau	55,30%	29,4	18 169
Marshal Islands	52,90%	29,2	59 610
Tuvalu	51,60%	29,3	11 931
Niue	50,00%	Not given	1 619
Tonga	48,20%	31,9	106 760
Samoa	47,30%	31,7	A

[Source:www.worldpopulationreview.com]

Use the information in TABLE 3 above to answer the questions that follow:

4.1.1   Is the data in TABLE 3 for the Obesity rate and BMI discrete or continuous? Give a reason for your answer. (2)

4.1.2   Calculate the average obesity rate. (3)

4.1.3   Determine the median for the given BMI data. (3)

4.1.4   Determine **A**, the population of Samoa in 2021 if the total population is 303 152. (3)

4.1.5   List two factors that would contribute to the high obesity rate in these countries. (2)

4.2

> The box and whisker plot below shows the BMI (Body mass index) of Men and Women.

Use the information above to answer the following questions

4.2.1   Identify Quartile 2 for the Men's BMI.   (2)

4.2.2   The average height of the men is 1,7 metres. Use your answer from **4.2.1** to determine the men's weight.

You may use the formula:

$$BMI = \frac{weight\ in\ kilograms}{(height\ in\ metres)^2}$$ (3)

4.2.3   A nurse stated that there is difference of 1 between the inter quartile range (IQR) for men and women.

Verify if this statement is CORRECT, showing all calculations.

You may use the formula:

IQR = Q3 – Q1   (5)

4.2.4   Consider the men's BMI. Provide a reason why the men's BMI would be higher than the women?   (2)

[25]

TOTAL: [100]