LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

CAPRICORN SOUTH DISTRICT

MATHEMATICAL LITERACY

GRADE 12

CONTROLLED TEST NO 1

2024

DATE: 12 March 2024

DURATION: 2 Hours

MARKS: 100

This question paper consists of 11 pages including the cover page.

INSTRUCTIONS AND INFORMATION:

1. This question paper consists of FOUR questions. Answer ALL the questions.
2. Number the questions correctly according to the numbering system used in this question paper.
3. Start EACH question on a NEW page.
4. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
5. Show ALL calculations clearly.
6. Round ALL the final answers appropriately according to the context, unless stated otherwise.
7. Indicate units of measurement, where applicable.
8. Maps and diagrams are NOT necessary drawn to scale, unless stated otherwise.
9. Write neatly and legibly.

QUESTION 1

1.1

Ms. Jane de Lange has earned R25 725,50 per month since 01 March 2022 until 28 February 2023. Thereafter her employer increased her monthly salary by 4,5%. She contributes 1% of UIF monthly. She also contributes to medical aid for herself, her husband and 3 children. Ms. Jane de Lange is a registered donor and contributes 5% of her salary towards charity.

TABLE 1: SHOWS 2023 AND 2024 MEDICAL AID CREDITS MONTHLY CONTRIBUTIONS

Medical aid credits in respect of monthly contributions		
Tax Rebates	**2024**	**2023**
Tax payer only	R364	R347
First dependant	R364	R347
Each additional dependant	R246	R234

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Use the information above to answer the questions that follow.

1.1.1 Write down the acronym UIF in full. (2)

1.1.2 Calculate the new monthly salary after the increment. (3)

1.1.3 Calculate the difference of Tax rebate for the first dependant in 2023 and 2024. (2)

1,1,4 Show that the amount she would contribute for her annual medical aid credits in 2024 is R17 592. (3)

1,1,5 The company that collects tax uses the following formula to calculate the taxable income for Ms. Jane de Lange. (3)

Complete the following formula: **Taxable income = ……**

1.1.6 Write down the name of the company that collects taxes on annual basis. (2)

1.2

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 2022.

World Health Organisation Statistics 2022
Estimated incidences of Tuberculosis Infection worldwide

Region OR country group	Number of cases measured in thousands	Per 100 000 of the population
Africa	2 480	11,9
The Americas	325	10,4
Eastern Mediterranean	856	7,8
Europe	229	9,31
South-East Asia	4 850	20,7
Western Pacific	1 860	19,4
High TB burden countries	9 200	49,1
Global	**10 600**	**79,5**

Source: www.who.int; tb-report

Use the information above to answer the questions that follow.

1.2.1 Determine the number of people who were estimated to have TB in Europe in 2022? (2)

1.2.2 Determine the region with the second least number of cases in total. (2)

1.2.3 Determine the range of the infection incidences per 100 000 of the population. Show your calculation. (2)

1.2.4 The infection rate in the Americas was 10,4 per 100 000. Calculate the number of cases you can estimate for a single South American country which had a population of 8 250 000 people. (3)

1.2.5 If there was a global reduction of 10% in the number of cases of TB by the end of 2022. Calculate the number of cases that would be there at the end of the year. (3)

[27]

QUESTION 2

2.1

The following water tariff is an extract from Sekhukhune District Municipality water and sanitation tariffs. Use the tariff to answer the questions on water usage charges.

Sekhukhune District Municipality: Water Tariff 2022/23

	RESIDENTIAL ***METERED AREA***	**2018/19 PRICING (IN RAND)**	**2022/23 PRICING (IN RAND)**
	Basic charge Full Time Supply	40,29	47,77
Rebates	Basic charge Part Time/Time Managed supply	20,14	23,88
	Unit charge		
	▪ First 6 units (indigents)	Free	Free
	▪ First 6 units (Non-indigents)	6,21	14,36
	▪ 7 to 10 units	7,24	16,74
	▪ 11 to 30 units	7,97	18,42
	▪ Above 30 units	8,77	20,26
	UNMETERED AREA		
	Monthly Flat Rate	81,37	188,05
	Pre-paid Unit charge	7,30	16,88
	COMMUNAL STAND PIPES (above RDP)		
	Monthly Flat Rate	44,50	17,86
	COMMUNAL STAND PIPES (PRE-PAID)		
	▪ First 6 units	Free	14,35
	▪ 6 to 30 units	7,26	16,77
	▪ Above 30 units	7,72	17,86

NOTE:
A rebate is a partial refund to someone who pays too much for water.
All the amounts in 2022/23 include 15% VAT and all the amounts in 2018/19 are VAT exclusive.

Source: Adapted from GP Question Paper

Use the information above to answer the questions that follow.

2.1.1 Define the term "Basic charge" according to the given context. (2)

2.1.2 Determine the number of intervals (years) from 2018/19 to 2022/23. (2)

2.1.3 Express as a unit ratio, the monthly flat rate for communal stand pipes to the residential UNMETERED monthly flat rate in 2022/23. (Round to two decimal places) (4)

2.1.4 Calculate the amount (including VAT) for the monthly flat rate for the COMMUNAL stand pipes in 2018/19. (3)

2.1.5 Determine the amount a household will pay for buying 17 kilolitres of water on a pre-paid option in an *UNMETERED* residential area in 2022/23. (3)

2.1.6 Calculate the amount of money a non-indigent family at Groblersdal (a town under Sekhukhune district) will pay for using 23 kl of water a month on a full-time water supply in 2022/23. (5)

2.2

Mr. Gilbert Rantho intends to go and reside at Marble Hall (a residential area) from his current home in Ga-Masemola (a communal stand).

He will continue with gardening at his new residence and will restrict the water usage to the usual 32 kl a month.

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Use the information above and Question 2.1 to answer the questions that follow.

Mr. Gilbert Rantho alleges that the monthly water payment at his new residence will not exceed the previous payments at Ga-Masemola (a communal piped area) using a pre-paid option by more than R50 in 2018/19. (9)

Show through calculations if indeed his assertion is correct.

[28]

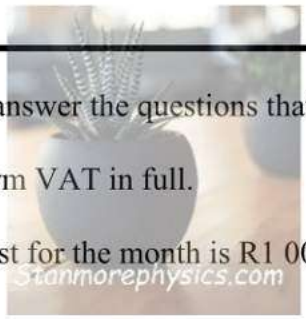
QUESTION 3

3.1

Mrs. Judy Maharaj has ventured into poultry farming, where she sells five-dozen eggs at the local street market at R150 (including VAT).

- If she packages 50 or less five-dozen eggs per month, her production costs are R100 per five-dozens.
- If she packages more than 50 five-dozen eggs per month, her production costs are reduced by 15 % per five-dozen.

Mrs. Judy Maharaj has to pay R8 400 annually for the rental of her stall and weekly transport costs of R75.



Use the information above to answer the questions that follow.

3.1.1 Write down the acronym VAT in full. (2)

3.1.2 Show that her fixed cost for the month is R1 000. (2)

3.2

The table below shows Mrs. Judy Maharaj's production cost for different quantities of five-dozenk packaged.

TABLE 2: COST OF FIVE-DOZEN EGGS PACKAGED

Number of duvet sets	0	30	50	51	56	60	70	**B**
Total cost (in rand)	R1 000	R4 000	R6 000	R5 335	R5 760	R6 100	**A**	R7 800

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Use the information above and QUESTION 3.1 to answer the questions that follow.

3.2.1 Calculate the missing values **A** and **B.** (5)

You may use the following formula:

Total cost
= fixed monthly cost + (number of five-dozen × cost per five-dozen eggs)

3.2.2 Mrs. Judy Maharaj draws two graphs to represent her income and expenses for different quantities of five-dozen eggs. The graph showing her INCOME for different quantities of five-dozen eggs has already been drawn on ANNEXURE A. (7)

Use the values from TABLE 2 to draw a second graph on ANNEXURE A showing the total EXPENSES for making different quantities of five-dozen eggs, Label the graph as "EXPENSES".

3.2.3 Use the two graphs drawn to answer the following questions:

a) Calculate the number of five-dozen eggs that Mrs. Judy Maharaj should sell to break-even. (2)

b) Calculate the amount of profit Mrs. Judy Maharaj would make if all 80 five-dozen eggs are sold. (3)

c) Suppose Mrs. Judy Maharaj packages 80 five-dozen eggs, but only sells 70 of them. Calculate her profit for that month. (3)

[24]

QUESTION 4

4.1

On the 14th February 2024, there was a queue of customers waiting to eat at Danny's Diner, a popular eating place in Matatiele.

The time (in minutes) that 16 of Danny's customers had to wait in the queue is given below:

30	15	45	36	**A**	40	34	**B**
B	42	26	32	38	35	41	28

B is a value greater than 20.

Use information above to answer the questions that follow.

4.1.1 The range of the waiting times was 37 minutes and the mean (average) waiting time was 34 minutes.

a) Calculate the missing value **A**, the longest waiting time, (2)

b) Hence, calculate the value of **B**. (4)

c) Hence, determine the median waiting time. (3)

4.1.2 The lower quartile and the upper quartile of the waiting times are 27 minutes and 41,5 minutes respectively. (2)

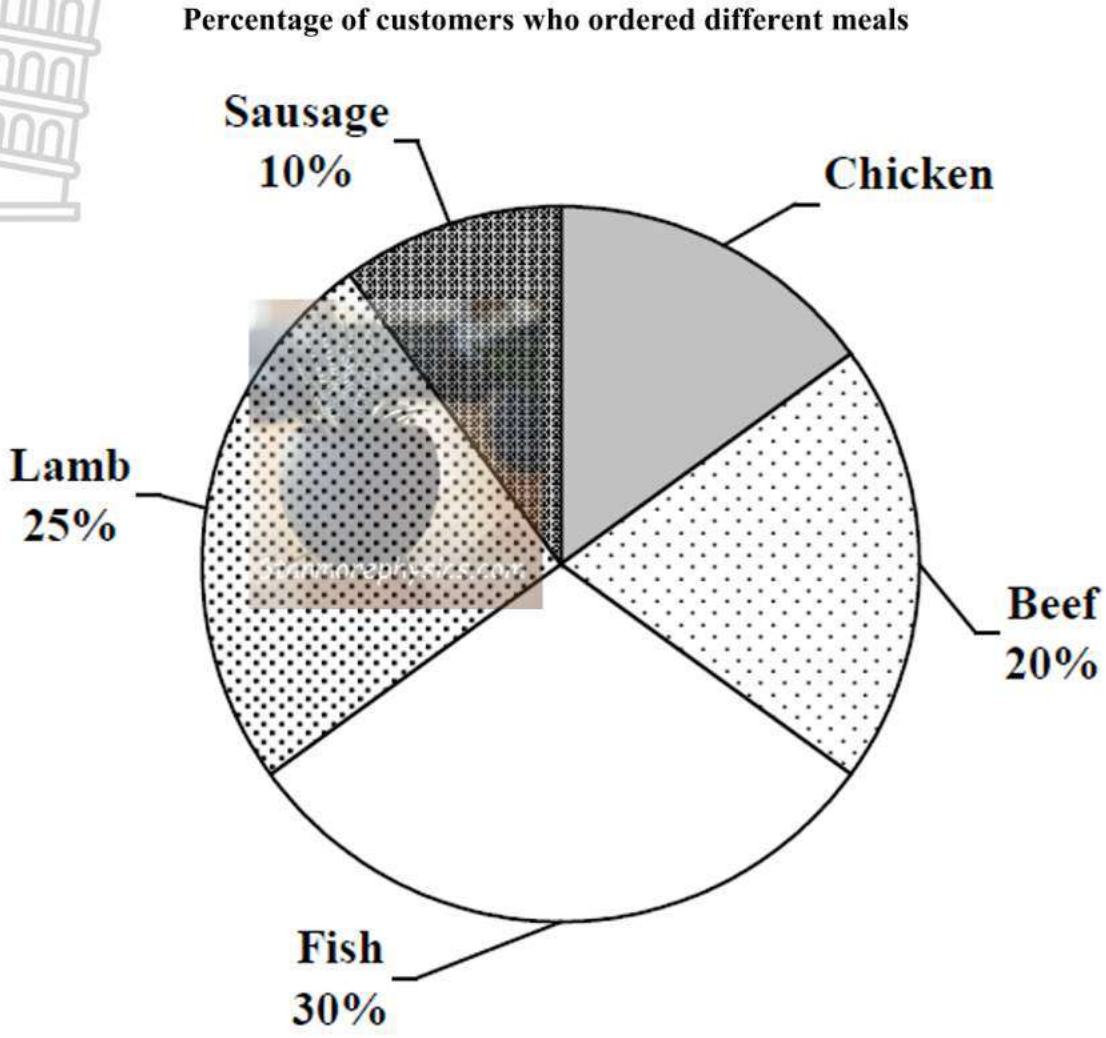
Determine the number of customers who had to wait in the queue for a shorter time than the lower quartile.

4.1.3 Danny's previous records for 16 customers on the 7th February 2024, showed that the median, range and the mean (average) of the waiting times were 10 minutes, 5 minutes and 10 minutes respectively. (4)

Compare the statistical measures relating to the waiting times on 7th and 14th February and then identify TWO possible reasons to explain the difference in these waiting times.

4.2

The pie chart below shows the percentage of customers who ordered different meals at Danny's Diner on 14th February 2024.



Use the information above to answer the questions that follow.

4.2.1 If 40 customers ordered beef meals, determine the number of customers who ordered chicken meals. (4)

4.2.2 A customer is randomly selected. Determine the probability that the customer will NOT order a lamb meal. (2)

[21]

TOTAL MARKS: 100

NAME OF THE LEARNER: ……..

ANNEXURE A

QUESTION 3.2