Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 11

NOVEMBER 2023

MATHEMATICAL LITERACY P1 (DEAF)

MARKS: **100**

TIME: **2 hours**

This question paper has 11 pages including an answer sheet.

INSTRUCTIONS AND INFORMATION

1. This question paper has **FOUR questions.**
   Answer ALL the questions.

2. **Use** the **ANSWER SHEET** to **answer QUESTION 4.1.4**.

3. **Number** the **answers** the **same** as the numbers on the **question paper**.

4. **Diagrams** are **NOT** drawn to **scale**.
   Some questions will **tell** you to **use the scale**.

5. **Round off** ALL **final answers** to **fit** with the **content** of the question.

6. **Write units** where needed.

7. Start **EACH question** on a **NEW page**.

8. **Show ALL calculations**.

9. Write **neatly**.
   Your **work** should be **easy** to **read**.

QUESTION 1

1.1 David **runs** a small **motorcycle service business from home**.
Below is the **budget drawn up** by him for the **new month**.

INCOME	AMOUNT	EXPENSES	AMOUNT
26 Motorcycle services	R33 150	Detergents	R375
25 Car washes	R1 625	Motorcycle parts	…
		Water	R850,25
		Other	R1 500
TOTAL INCOME	**…**	**TOTAL EXPENSES**	R7 927,86

1.1.1 **Calculate David's total income** for the **month**. (2)

1.1.2 **Determine** the **amount charged** per **motorcycle service**. (2)

1.1.3 **Calculate** the **amount spent** on **motorcycle parts**. (2)

1.1.4 **Calculate** what **percentage** of **total expenses** David **spends on water**. (3)

1.2 **TABLE 1** below **shows** the **tollgate tariffs** for the **N1 road**.

TABLE 1: N1 TOLLGATE TARIFFS

Tollgate (N1)	Class 1	Class 2	Class 3	Class 4
Huguenot – Main line	R44,50	R123,00	R193,00	R313,00
Vaal Plaza – Main line	R74,50	R140,00	R169,00	R225,00
Grasmere – Main line	R22,50	R67,00	R78,00	R103,00
– Ramp (N)	R11,50	R33,00	R39,00	R51,00
– Ramp (S)	R11,50	R33,00	R39,00	R51,00
Verkeerdevlei – Main line	R64,00	R128,00	R193,00	R271,00

VEHICLE CLASS APPLICABLE TO CONVENTIONAL TOLL PLAZAS		
CLASS 1	ALL LIGHT VEHICLES	
HEAVY VEHICLES		
CLASS 2	2 AXLES	
CLASS 3	3 AND 4 AXLES	
CLASS 4	5 OR MORE AXLES	

[Source: aa.co.za/toll-tariffs]

Use **TABLE 1**. **Answer** the **questions**.

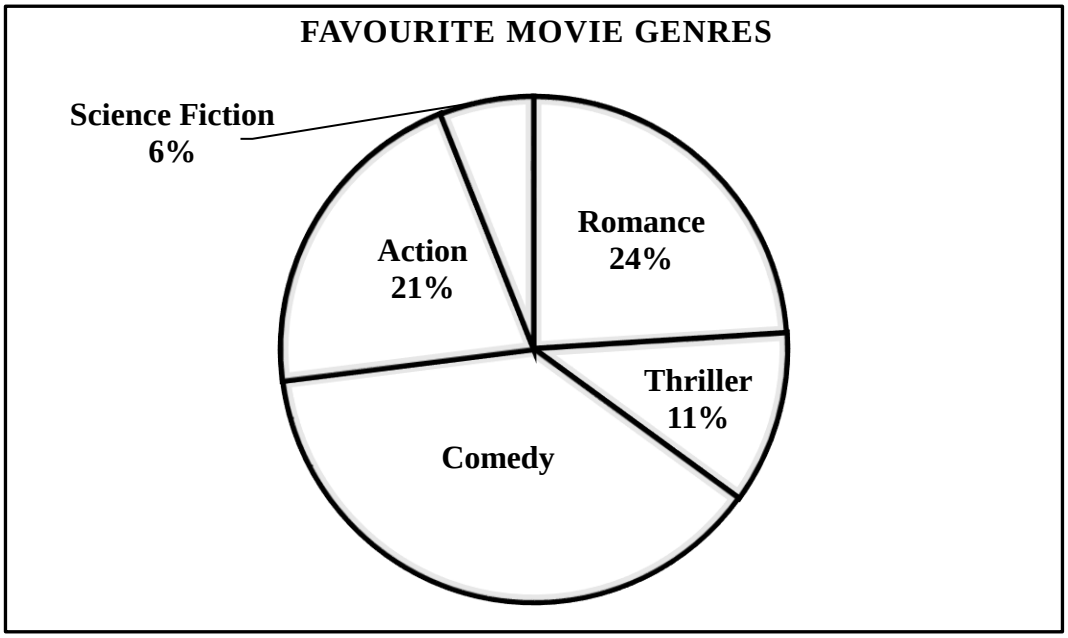
1.2.1 **Determine** the **cost** of **travelling** by **car**, t**owing** a **caravan**, at the **Grasmere Main line tollgate**. (2)

1.2.2 The **cost** of **travelling** by **motorbike** was **R74,50**.
Write down **which tollgate** was **used**. (2)

1.2.3 **Write** down the **tariff** for the **Vaal Plaza**, **class 2 rates**, as a **simplified ratio** to the **class 4 rates** of the **same plaza**. (2)

1.2.4 **Calculate** the **cost** of a **return trip** for a **class 4 vehicle going through** the **Verkeerdevlei tollgate**. (2)

1.3 The **graph** given **below shows** the **favourite movie genres** of a **group** of **220 students**.



Use the **graph**. **Answer** the **questions**.

1.3.1 **Name** the **type** of **graph represented** above. (2)

1.3.2 **Calculate** the **percentage** of **students** that **prefer comedy**. (2)

1.3.3 **Determine** the **number** of **students** that **prefer romance movies**. (2)

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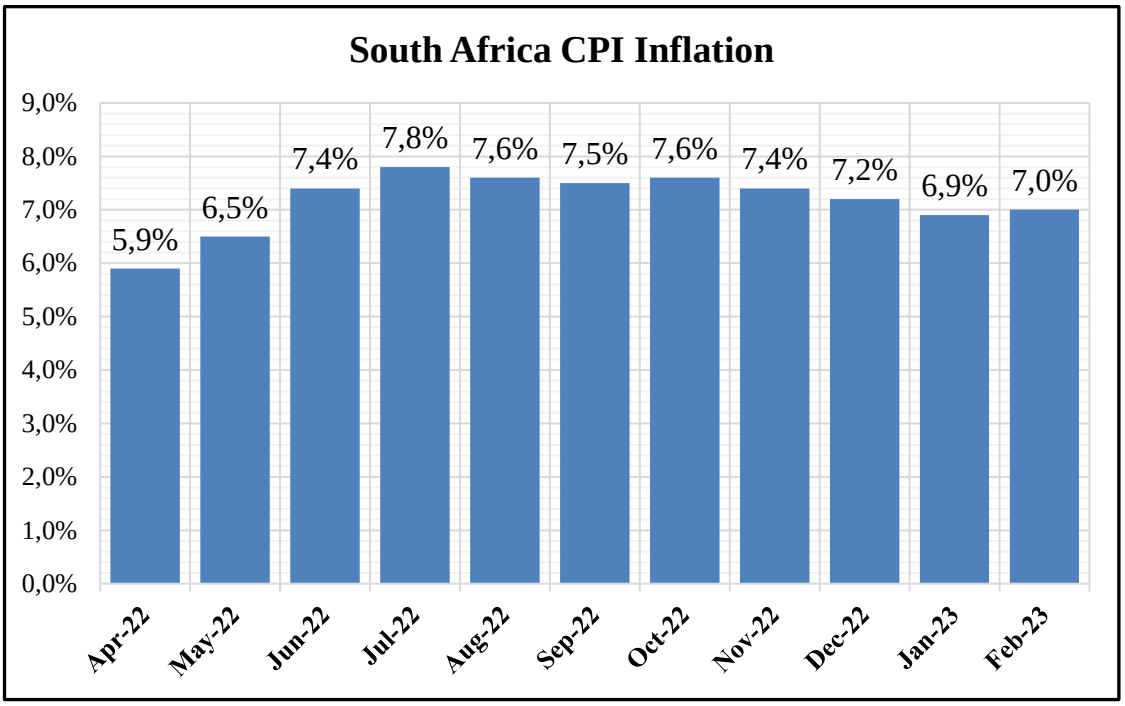
QUESTION 2

2.1 The **graph** below **shows South Africa's CPI inflation rate** for the period **April 2022** to **February 2023**.



[Source: tradingeconomics.com/statssa]

Use the **graph**. **Answer** the **questions**.

2.1.1 In **December 2022** the **price** of a **loaf** of **bread** was **R12,47**.
Calculate the **price** of a **loaf** of **bread** in **February 2023**. (5)

2.1.2 **Did** the **price** of **goods increase** or **decrease** from **July 2022** to **September 2022**?
Explain your **answer**. (2)

2.2 The **invoice(account)** below is **for** the **installation** of a **water tank**.

WATER TANKS 4 YOU		
Bill to: Mr T. Rock 1112 Flamingo Drive		Invoice number: 123 765 987 Invoice date: 22/04/2023
Description	**Unit Price**	**Amount**
1 x 5 000 ℓ Water tank	R5 499,00	R5 499,00
3 x Filters	R349,00	**A**
1 x Water pump	R1 699,00	R1 699,00
Labour	7,5 hours x …	R6 500,00
	SUBTOTAL	…
	15% VAT	…
	INVOICE TOTAL	…
***All payments due within 15 days** of **receipt** of **invoice(account)**.		

Use the **information**. **Answer** the **questions**.

2.2.1 **Give** the **day** and **month** this **invoice** must be **paid**. (2)

2.2.2 **Determine** the **total cost** (rounded to the nearest thousand) of the **filters**. (3)

2.2.3 **Calculate** the **cost per hour** for labour. (2)

2.2.4 **Calculate** the **total amount due(owed)**, **including VAT**, for the **invoice**. (3)

2.2.5 The **price** of the **water tank** is **due(set)** to **increase** in the **next month.**
The **new price** is **expected** to be **R5 795,00**.
Mr Rock **says** that this **increase** is more than **5%**.

Verify(Prove), **showing ALL calculations**, whether this statement is **valid(correct)** or not.

Use the **formula**:

$$\textit{Percentage change} = \frac{\textit{Difference in cost}}{\textit{Original cost}} \times 100\%$$ (4)

2.3 Given in the **table** are the **electricity tariffs** for **domestic households**.

BLOCKS	ELECTRICITY	RATE (c/kWh)
Block 1	0–600 kWh	229,00 c/kWh
Block 2	More than 600 kWh	278,46 c/kWh

Use the **information**. **Answer** the **question**.

Mr Rock and his **family used** a **total** of **712 kWh** of **electricity**.
Calculate the **amount**, in **Rands**, that **he** will **pay** for their **electricity** usage this **month**. (4)
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QUESTION 3

TABLE 2 lists the **winnings**, **endorsements(sponsorships)** and **total net worth** of the **nine highest paid athletes** in **2022**.
All values in the **table** are given in **millions**.

TABLE 2: TOP NINE HIGHEST PAID ATHLETES IN 2022

Name	Winnings (in millions)	Endorsements (in millions)	Total Net Worth (in millions)
Lionel Messi (soccer)	$75	$55	$130
Le Bron James (basketball)	$41,2	$80	$121,2
Cristiano Ronaldo (soccer)	$60	$55	$115
Neymar (soccer)	$70	$25	$95
Stephan Curry (soccer)	$45,8	$47	$92,8
Kevin Durant (soccer)	$42,1	$50	$92,1
Roger Federer (tennis)	---	$90	----
Canelo Alvarez (boxing)	$85	$5	$90
Tom Brady (football)	$31,9	$52	$83,9
TOTAL:			**B**

[Source: Wikipedia.org]

Use the **information**. **Answer** the **questions**.

3.1 **Write** the **winnings** of **Stephan Curry** in **words**. (2)

3.2 **Determine** the **median value** of the **endorsements(sponsorships)** of the **nine players**. (3)

3.3 The **total net worth** of **Roger Federer** is **$30,5 million dollars less than** that **of Le Bron James**.
Calculate the **value** of **B**, the **total net worth** of the **nine players**. (4)

3.4 **Calculate** the **mean winnings** for **2022**. (3)

3.5 **Express(show)** the **endorsement(sponsorship) amount** of **Cristiano Ronaldo** as a **percentage** of his **total net worth**. (2)

3.6 **Write** down the **winnings** of **Neymar** as a **simplified ratio** to the **total net worth** of **Canelo Alvarez**. (2)

3.7 **Use** the **table.**
Determine the **probability** as a **decimal fraction** (rounded to **THREE decimal places**), of **randomly selecting** a **player** from the **table** above that **plays any sport except soccer**. (3)
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QUESTION 4

4.1 The **choir committee** of a **high school** have **started** a **small business** to **raise funds** for their **upcoming tour**.
They **make** and **sell curry bunnies** with **assistance(help)** from **their parents**.
They **pay** their **parents R450 each month** to **cover costs** for **water** and **electricity**.
It **costs** them **R10,00** to make **one curry bunny**.
TABLE 3 below s**hows** their **income** and **expenses** for one **month**.

TABLE 3: CHOIR COMMITTEES MONTHLY INCOME AND EXPENSES

Number of curry bunnies	**0**	**10**	**20**	**50**	**100**	**150**	**200**
Expenses (in Rands)	450	550	650	950	1 450	1 950	2 450
Income (in Rands)	0	250	500	1 250	2 500	3 750	5 000

Use the **information**. **Answer** the **questions**.

4.1.1 **Identify** the **dependent** and **independent variables** in the above **context**. (2)

4.1.2 **Determine** the **selling price** of **ONE curry bunny**. (2)

4.1.3 **Write** down the **formula** they will **use** to **determine** their **total expenses**. (2)

4.1.4 The **graph drawn** on the **ANSWER SHEET shows** the **total income**.
On the **same set** of **axes**, **draw** a **graph**.
It must **show** the **TOTAL EXPENSES** for the **number** of **curry bunnies** made in **one month**. (3)

4.1.5 The **choir committee claims(say)** that if they **sell 200 curry bunnies every month** for **four months**, they will **make more** than **R10 000 profit**.

Say if the **choir committee is correct. Show** all **calculations**. (4)

4.2 The **frequency table** below shows the **number** of **motorists buying petrol** on a **specific day**.

Time Interval	Frequency	Cumulative Frequency
06:00–08:59	12	12
09:00–11:59	8	20
12:00–14:59	13	**C**
D	17	50
18:00–20:59	23	73
21:00– 23:59	4	77

Use the **information**. **Answer** the **questions**.

4.2.1 **Determine** the **value** of **C**. (2)

4.2.2 **Give** the **time interval** at **D**. (2)

4.2.3 **Write** down the **modal time interval**. (2)

4.2.4 **Each motorist buys** an **average** of **6,5 ℓ** of **petrol** on this day.
The **price** of **petrol** is **R21,92 per litre**.
Determine the **total cost** for the **petrol bought** on **this day**. (3)

4.2.5 **What is** the **probability**, **as** a **fraction**, of a **motorist buying petrol before 12:00** on **this day**? (2)

4.3 Sethu **wants** to **save money** to **buy** her **mother** a **gift** for her **50th birthday**.
It is in **four years' time**.
She **decides** to **look** at **two banks**.
Both **offer** an **interest rate** of 8**,5% p.a**.

She **has R1 000** that she **can save**.

The table below **shows** the **amount** that **she** will have **saved** at **each bank annually(yearly).**

	YEAR 1	YEAR 2	YEAR 3	YEAR 4
BANK A	R1 085	R1 177,23	R1 277,29	---
BANK B	R1 085	R1 170	R1 255	R1 340

Use the **information**. **Answer** the **questions**.

4.3.1 **Which** bank **represents simple interest**?
Give a **reason** for your **answer**. (2)

4.3.2 Sethu **claims** that if **she invests** at **BANK A**, she will have **saved R45,86 more** than she would at **BANK B**, **after four years**.

Say if the **Sethu is correct. Show** all **calculations**. (4)

4.3.3 Sethu would like to **order** her **mother** a **clock** from Switzerland.
It **costs 68,49 Euros**.
The **exchange rate** is **1 Euro = R19,83**.

If she **decides** to **invest** with **BANK A**, will she have **saved enough** after **four years** to **afford** the **gift**? (3)

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TOTAL: 100

ANSWER SHEET

NAME OF LEARNER: …… GRADE: ……

QUESTION 4.1.4