basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS/
NATIONAL SENIOR CERTIFICATE EXAMINATIONS

MATHEMATICAL LITERACY P1

MAY/JUNE 2025

MARKS: 150

TIME: 3 hours

This question paper consists of 13 pages and a 23-page SPECIAL ANSWER BOOK.

INSTRUCTIONS AND INFORMATION

1.   This question paper consists of FIVE questions.

2.   Answer ALL the questions in the SPECIAL ANSWER BOOK provided.

3.   You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.

4.   Show ALL calculations clearly.

5.   Round off ALL final answers appropriately according to the given context, unless stated otherwise.

6.   Indicate units of measurement, where applicable.

7.   Diagrams are NOT necessarily drawn to scale, unless stated otherwise.

8.   Write neatly and legibly.

QUESTION 1

1.1   TABLE 1 below shows comparative prices for data bundles of three selected service providers.

TABLE 1: COMPARATIVE PRICES FOR DATA BUNDLES OF THREE SERVICE PROVIDERS

DATA BUNDLE	SERVICE PROVIDER		
	Telkom	MTN	Smartmobile
100 MB	R29,25	R20	R20
500 MB	R69,60	R75	R49
1 GB	R100	R99	R89

[Adapted from https://smartmobile.co.za]

NOTE:
1 megabyte (MB) = 1 000 000 bytes
1 gigabyte (GB) = 1 000 megabytes

Use TABLE 1 and the information above to answer the questions that follow.

1.1.1   Identify the service provider that is the cheapest for both the 500 MB and 1 GB data bundles.   (2)

1.1.2   Calculate the total cost of a 500 MB data bundle purchased from MTN at THREE different times during a single month.   (3)

1.1.3   Determine the cost per megabyte (MB) if you purchase 1 GB from Telkom.   (2)

1.1.4   The probability of randomly selecting a service provider selling a 100 MB data bundle for R20 is $\frac{2}{3}$.

Convert this probability to a decimal number, correctly rounded off to TWO decimal places.   (2)

1.2   The Government Employees Medical Scheme (GEMS) has different options for its members. Two of the more affordable options are the Beryl option and the Ruby option.

TABLE 2 below shows the monthly contributions per salary bracket, in rand (R), for the main member and dependants.

TABLE 2: MONTHLY CONTRIBUTION PER MONTHLY SALARY BRACKET FOR TWO DIFFERENT OPTIONS

BERYL OPTION			
MONTHLY SALARY BRACKET (in R)	**CATEGORY**		
	A	**B**	**C**
0–10 506	1 538	1 534	863
10 507–14 743	1 669	1 656	952
14 744–25 256	1 821	1 820	1 022
25 257 +	2 187	2 187	1 241

RUBY OPTION			
MONTHLY SALARY BRACKET (in R)	**CATEGORY**		
	A	**B**	**C**
0–15 821	3 180	2 385	1 230
15 822–27 324	3 540	2 660	1 380
27 325 +	3 920	2 995	1 520

NOTE: The contributions shown are per person per category.

A	Main member
B	Adult dependant
C	Child dependant

[Adapted from https://www.gems.gov.za]

Use TABLE 2 and the information above to answer the questions that follow.

1.2.1   Identify the option where a person earning a monthly salary of R30 000 pays the same amount for both main member and adult dependant.   (2)

1.2.2   Write down the monthly salary bracket of a person who pays R3 540 as the main member.   (2)

1.2.3   A person earns a gross monthly salary of R14 000. He is the main member of the medical aid and uses the Beryl option. He has one adult dependant and two child dependants.

Calculate his total monthly contribution.   (3)

1.2.4   Calculate the difference in contributions between the Beryl and Ruby options for a main member with a monthly salary of R15 800.   (3)

1.3   TABLE 3 below shows the actual and projected percentage changes for certain economic indicators in South Africa from 2023 to 2026.

TABLE 3:   ACTUAL AND PROJECTED PERCENTAGE CHANGES FROM 2023 TO 2026

ECONOMIC INDICATORS	PERCENTAGE CHANGE			
	ACTUAL	PROJECTED		
	2023	2024	2025	2026
Household consumption	0,7	1,3	1,8	1,7
Capital formation	4,2	3,7	4,0	3,6
Exports	3,2	2,1	2,5	3,2
Imports	4,8	1,9	2,6	2,6
Gross domestic product (GDP)	0,6	1,3	1,6	1,8
Consumer price inflation	6,0	4,9	4,6	4,6
Current account balance (% of GDP)	− 1,8	− 2,8	− 3,0	− 3,0

[Adapted from www.treasury.gov.za]

Use TABLE 3 above to answer the questions that follow.

1.3.1   Define the term *inflation*.   (2)

1.3.2   State whether the percentages given in the table are *discrete* or *continuous data values*.   (2)

1.3.3   Write down the projected percentage change for exports during 2025.   (2)

1.3.4   Arrange, in descending order, the projected percentage changes for 2026.   (2)

1.3.5   Identify the TWO years in which the projected percentage changes for imports remained the same.   (2)

[29]

QUESTION 2

2.1   ANNEXURE A in the ANSWER BOOK shows the tax certificate Frieda Khan received for the tax year ending February 2024. Some information has been omitted.

Use ANNEXURE A to answer the questions that follow.

2.1.1   Write down the name of the employer.   (2)

2.1.2   Indicate whether the following statements are TRUE or FALSE. If the statement is FALSE, give a suitable reason why.

(a)   Frieda's bank account is a cheque account.   (2)

(b)   Frieda does not contribute towards any of the following: pension fund, provident fund or a retirement annuity fund.   (2)

2.1.3   Determine the missing values:

(a)   **A**, the total tax, SDL and UIF   (2)

(b)   **B**, the amount for code 3808   (3)

2.1.4   Calculate Frieda's monthly contribution to the UIF.   (5)

2.1.5   Determine Frieda's net annual taxable income.

You may use the following formula:

Net annual taxable income
= annual gross salary – (total provident fund contributions) – (20% of travel allowance)   (5)

2.2   ANNEXURE B in the ANSWER BOOK shows the tax rates for individuals for the tax year ending February 2024.

Use ANNEXURE A, ANNEXURE B and your answer to QUESTION 2.1.5 to answer the question that follows.

Frieda stated that her employer deducted more than the required amount of PAYE tax from her salary. She felt that she deserved a tax refund from SARS.

Verify, showing ALL calculations, whether her statement is VALID.   (6)

2.3 | Frieda lives in Durban, a city in the eThekwini Metropolitan Municipality.

TABLE 4 below indicates the tariffs for domestic water consumption supplied by the eThekwini Municipality for three years for February.

TABLE 4:   TARIFFS FOR DOMESTIC WATER CONSUMPTION

MONTHLY CONSUMPTION	Feb. 2022 TARIFF (R/kℓ)	Feb. 2023 TARIFF (R/kℓ)	Feb. 2024 TARIFF (R/kℓ)
0–6 kℓ	R0,00	R0,00	R0,00
More than 6 kℓ to 25 kℓ	R23,60	R25,60	R27,80
More than 25 kℓ to 30 kℓ	R32,20	R34,90	R37,90
More than 30 kℓ to 45 kℓ	R71,00	R77,00	R83,60
More than 45 kℓ	R78,10	R84,70	R91,90

[Adapted from www.ethekwini.co.za]

All tariffs exclude 15% VAT.

Use TABLE 4 above to answer the questions that follow.

2.3.1	Define the term *tariff* in the given context.	(2)
2.3.2	Calculate the amount, including VAT, which Frieda paid for consuming 32 kℓ of water during February 2024.	(6)
		[35]

QUESTION 3

3.1 The Education Facility Management System Report outlines the overview summary of the school infrastructure across all nine provinces in South Africa.

TABLE 5 below shows data indicating schools' access to electricity and the source of electricity. Some values have been omitted.

TABLE 5: DATA INDICATING ACCESS TO ELECTRICITY AND THE SOURCE OF ELECTRICITY

PROVINCE	NUMBER OF SCHOOLS	SOURCE OF ELECTRICITY		
		GENERATOR POWER	SOLAR POWER	GRID CONNECTION
Eastern Cape	5 046	231	590	4 441
Free State	945	24	5	945
Gauteng	2 066	2	6	2 064
KwaZulu-Natal	5 797	51	440	5 068
Limpopo	3 649	97	227	3 470
Mpumalanga	1 649	156	1	**A**
Northern Cape	545	11	12	525
North West	Data not available	59	2	1 421
Western Cape	1 452	4	2	1 452
TOTAL	–	**635**	**1 285**	–

[Adapted from the Education Facility Management System (EFMS) Report, as at 21 August 2023]

NOTE:
Grid connection is electricity supplied by Eskom.
Some schools use more than one source of electricity.

Use TABLE 5 above to answer the questions that follow.

3.1.1 Write down the province that has the second highest number of schools that use solar power. (2)

3.1.2 Calculate, in simplified form, the ratio of schools using generators in the Eastern Cape to the schools using generators in the Northern Cape. (3)

3.1.3 The mean number of schools connected to the grid is 2 333,333333.

Calculate the missing value, **A**, the number of schools connected to the grid in Mpumalanga. (5)

3.1.4 Daniel stated that Gauteng represented the province with the median number of schools using solar power.

Verify, showing ALL calculations, whether his statement is CORRECT. (4)

3.2 | The pie chart in ANNEXURE C in the ANSWER BOOK shows various public schools' access to electricity in the provinces of South Africa.
Three provinces have been summarised in the bar graph attached to the pie chart.

Use ANNEXURE C to answer the questions that follow.

3.2.1   Determine, as a percentage, the probability that a school selected randomly in South Africa is in KwaZulu-Natal.   (3)

3.2.2   The total number of schools in South Africa that have access to electricity is 22 597.

Use the percentage of schools in North West to calculate how many schools have access to electricity.   (4)

3.3 | The graphs in ANNEXURE D in the ANSWER BOOK show the energy generation capacity of the different sources, namely wind power, solar power, hydropower and other power sources generated for Brazil and South Africa during the period 2015 to 2022.

Use ANNEXURE D to answer the questions that follow.

3.3.1   Calculate the total terawatt-hours (TWh) generated by Brazil in 2019.   (3)

3.3.2   A data analyst compared the percentage change in South Africa's wind generation capacity to that of Brazil's percentage change in wind generation capacity for the period 2015 to 2021 and made the following statement:

South Africa generated more than 237% wind power compared to that of Brazil during the same period.

Show, by means of calculations, whether his statement is VALID.

You may use the following formula:

$$\text{Percentage change} = \frac{\text{TWh(2021)} - \text{TWh(2015)}}{\text{TWh(2015)}} \times 100\%$$
    (7)

3.3.3   Explain, using the graphs in ANNEXURE D, why one would state that South Africa generated more solar energy than Brazil during 2022.   (2)

[33]

QUESTION 4

4.1   One of the biggest sources of revenue for the government is income tax which is used for government expenditure.

TABLE 6 below shows the estimated government expenditure in billions of rands for the period 2023 to 2025.

Some of the values have been omitted.

TABLE 6:   ESTIMATED GOVERNMENT EXPENDITURE FOR THE PERIOD 2023 TO 2025

EXPENDITURE ITEMS	AMOUNT IN BILLIONS OF RANDS		
	2023	**2024**	**2025**
Learning and culture	468,4	480,6	499,3
Health	267,3	271,9	281,1
Social development	368,5	387,3	385,0
Community development	251,5	265,3	274,9
Economic development	239,8	255,4	274,9
Peace and security	236,8	244,0	254,5
General public services	76,9	74,7	77,5
Payments for financial assets	3,5	2,6	2,0
ALLOCATED EXPENDITURE	**1 912,7**		**2 049,2**
Debt-service cost	356,1	382,2	414,7
Contingency reserve	0	5,0	7,6
TOTAL EXPENDITURE	**2 268,8**	**B**	**2 471,5**

[Adapted from www.treasury.gov.za]

Use TABLE 6 and the information above to answer the questions that follow.

4.1.1   Write the debt-service cost expenditure for 2023 in words WITHOUT using numerals.   (2)

4.1.2   Calculate the missing value, **B**.   (3)

4.1.3   Determine, in millions, the total amount the government estimates to spend on social development and community development during 2025.   (4)

4.1.4   Two graphs, representing four selected expenses for the period 2023 and 2024, are drawn in the ANSWER BOOK.

Use the same set of axes to draw and label another graph representing the same expenses for the year 2025.   (4)

4.2 During 2024, South African citizens were required to register to vote in the 2024 elections.

TABLE 7A below shows the number of voters recorded on the voters' roll on 19 March 2024, per age group and gender, while TABLE 7B shows the number of voters per province, with some data omitted.

TABLE 7A: NUMBER OF VOTERS PER AGE GROUP AND GENDER

AGE GROUP	NUMBER OF VOTERS	
	MALE	FEMALE
18–19	250 368	326 984
20–29	2 007 071	2 453 269
30–39	3 158 641	3 658 842
40–49	2 842 251	3 128 444
50–59	2 048 407	2 494 842
60–69	1 309 280	1 793 594
70–79	576 640	936 468
80+	217 233	521 486
TOTAL	**12 409 891**	**15 313 929**

TABLE 7B: NUMBER OF VOTERS PER PROVINCE

PROVINCE	NUMBER OF VOTERS
Eastern Cape	3 439 325
Free state	1 456 935
Gauteng	6 542 033
KwaZulu-Natal	5 738 272
Limpopo	2 779 668
Mpumalanga	2 025 074
Northern Cape	**L**
North West	1 768 580
Western Cape	3 317 102

[Adapted from https://www.elections.org.za]

Use the above information to answer the questions that follow.

4.2.1 Write down the age group which represents the maximum number of voters for both males and females. (2)

4.2.2 Determine, as a percentage, the probability of randomly selecting a male voter from the total number of voters. (4)

4.2.3 The range for the number of voters per province is 5 885 202.

Calculate the missing value, **L**, if the Northern Cape had the lowest number of recorded voters. (4)

4.2.4 Describe the trend in the number of recorded female voters with regard to the different age groups. (2)

[25]

QUESTION 5

5.1

> The Ivory Coast is a country in West Africa.
>
> Neo is the coach for the national soccer team of the Ivory Coast.
>
> TABLE 8 below shows the top ten goal scorers, the number of games played and the number of goals scored by the national team.
>
> **TABLE 8: TOP TEN GOAL SCORERS, NUMBER OF GAMES PLAYED AND NUMBER OF GOALS SCORED**
>
> | PLAYER | A | B | C | D | E | F | G | H | I | J |
> |---|---|---|---|---|---|---|---|---|---|---|
> | Number of games played | 105 | 90 | 50 | 96 | 86 | 39 | 30 | 101 | 54 | 58 |
> | Number of goals scored | 65 | 49 | 28 | 27 | 23 | 22 | 21 | 19 | 18 | 17 |
>
> [Adapted from www.wikipedia.com]

Use TABLE 8 and the information above to answer the questions that follow.

5.1.1   Identify the player who scored an average of exactly one goal for every three matches played.   (2)

5.1.2   Neo compared player G with player C and made the following claim:

Player G had a better games-played to goals-scored ratio compared to player C.

Verify, showing ALL calculations, whether his claim is VALID.   (5)

5.1.3   Neo earns an annual salary of €18 000.

The official currency in the Ivory Coast is the franc of the West African communities (XOF).

On 16 March 2024, the exchange rate was €1 = 656 XOF.

Calculate Neo's monthly salary in XOF.   (4)

5.1.4   Neo invested €2 500 for 30 months at a compound interest rate of 12,6% per annum, compounded annually.

Calculate, in euros, the amount he will receive at the end of the investment period.   (5)

5.2 | The African Cup of Nations (AFCON) is a soccer tournament for all African countries. The countries are divided into six groups, with four teams in each group.

The total prize money for the 2024 AFCON Tournament is $32 000 000.

TABLE 9 below shows the prize money the teams receive for reaching different stages in the tournament.

TABLE 9: PRIZE MONEY FOR THE 2024 AFCON TOURNAMENT

STAGES	PRIZE MONEY IN $
Winner	7 000 000
Runner-up	4 000 000
Losing semi-finalist (each)	2 500 000
Losing quarter-finalist (each)	1 300 000
Losing in round of 16 (each)	800 000
Knockout during the group stages	The two teams ranked 3rd in their groups, but failing to qualify for the round of 16, each receives $700 000.
	The team that finishes last in each of the six groups receives $500 000.

NOTE:

GROUP STAGES	KNOCKOUT STAGE
• Each team plays three matches in the group stages and is awarded points. • The top two teams from each of the six groups will automatically enter the knockout stage. • The four best third-placed teams also join the knockout stage.	• Each of the 16 teams plays a single match. • Winners proceed to the next stage, the quarter-finals. • The winners of the quarter-finals go to the semi-finals. • Losers of the semi-finals compete for the 3rd position.

[Adapted from www.supersport.com]

Use TABLE 9 and the information above to answer the questions that follow.

5.2.1   Write down the total number of teams that will play in the quarter-finals. (2)

5.2.2   The prize money for the 2024 AFCON Tournament was 40% more than the prize money for the previous tournament.

Determine, to the nearest $, the total prize money for the previous AFCON Tournament. (4)

5.2.3   Verify, showing ALL calculations, that the total prize money awarded to the 24 countries was $32 000 000. (6)

[28]

TOTAL: 150