



KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

MATHEMATICAL LITERACY

INVESTIGATION

TERM 1 2024

GRADE 10

MARKS: 50

TIME/DURATION: PART A – 5 DAYS

PART B – 1 LESSON (60 MINUTES)

NAME OF SCHOOL: _____

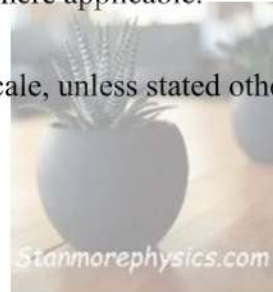
EDUCATOR: _____

DEPARTMENTAL HEAD: _____

This investigation consists of 6 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of **TWO QUESTIONS** including **TWO ANNEXURES**, and it is **divided** into **PART A** and **PART B**.
2. Number the answers correctly according to the numbering system used in this question paper.
3. Start **EACH** question on a **NEW** page.
4. An approved calculator (non-programmable and non-graphical) may be used, unless stated otherwise.
5. Round off **ALL** final answers to two decimal places unless stated otherwise.
6. Units of measurement must be indicated where applicable.
7. Diagrams are **NOT** necessarily drawn to scale, unless stated otherwise.
8. Write neatly and legibly.



PART A (Must be completed over 5 days outside the classroom)**Marks****QUESTION 1[27 marks]**

1. Jabulani, a grade 10 Mathematical Literacy student is in the market for a smart phone. His school has recently been equipped with uncapped wi-fi to allow learners access to online learning platforms. All learners were encouraged to acquire a smartphone and to use it as a learning resource at school.

He decides to conduct a brief survey in the school by means of a short questionnaire, in order to determine which phone is most preferred in his school. The participants must choose from 5 different smartphones, **Samsung galaxy A24, iPhone 14, Huawei nova 11i, Samsung Galaxy S24 Ultra, Hisense Infinity H60 Lite.**

You are required to assist Jabulani in writing up a suitable questionnaire to collect the required data from a sample of 40 persons. The data must provide clarity on the phone preference from the 5 smartphones listed above, and also the type of phone that the person is currently using.

Furthermore, the **questionnaire** must have **4 appropriate questions.**

- 1.1** Prepare a questionnaire with 4 questions to determine the most preferred phone by your chosen sample of 40 persons. The sample must be mixed and consists of teachers and learners selected from different grades. **(4)**
- 1.2** Use the **Tally table** in the **ANNEXURE A** to Summarise your data for analysis. **(5)**
- 1.3** Write down the smartphone that represents the modal preference. **(2)**

PART B

(Must be completed inside the classroom in one lesson under controlled conditions after Part A is completed fully.)

PART B**(Must be completed inside the classroom in one lesson under controlled conditions)**

- 1.4** Who represents the population in the above scenario? (2)
- 1.5** Is the category of smartphone numerical or categorical data? (2)
- 1.6** Jabulani's school consists of 350 learners and 10 teachers, calculate the percentage of the sample that participated in the study. Round off your answer to the nearest whole number. (5)
- 1.7** Is this sample calculated in **1.5** above a good representative of the whole school, explain your answer? (2)
- 1.8** Draw a bar graph on **ANNEXURE B** to show the smartphone preferences of the chosen sample. (6)
- TOTAL [28]**



QUESTION 2 [22 marks]

2. Jabulani decided not to choose the most popular smartphone since he wants to minimize the risk of theft. He saw the online advert below for a contract phone; however, he needs to determine if he can afford it and whether the package will meet his needs.

Samsung
Galaxy A24
128 GB
Light Green **R100**

6 GB
6 GB Anytime data
R 16,50 per GB
Mobile Internet Silver **R99**

Delivery
1 – 3 working days **FREE**

Contract term **24 Months**

Total **R199**
PMx24

- 2.1 Write down the total number of months that this contract is valid for? (2)
- 2.2 Calculate the total amount paid in subscription fees for the full duration of the contract. (2)
- 2.3 Explain the term subscription fee in this context. (2)
- 2.4 Jabulani can only afford a subscription fee of R300 a month. This budgeted amount covers any extra data and voice bundles needed by him. He needs at least 1,5 GB of data per day. Determine with calculations if 1.5 GB of data a day is within his budget? (5)
- 2.5 If Jabulani wants to purchase this contract, determine how much extra it will cost him per month to have a supply of 1,5 GB of data per day? (2)
- 2.6 The salesperson claims that the average number of gigabytes per day that come with the contract is approximately 0,2 gigs, verify if this claim is correct. (3)
- 2.7 If Jabulani skips one instalment for the phone, determine how much he will be required to pay in the following month's installment, provided he didn't use any extra data? (2)
- 2.8 If the Samsung Galaxy A24 contract charges R1.50/min for voice calls during peak time, Determine the total amount payable by Jabulani if the only extra cost was for one voice call that he made during the month, from 15:45 to 15:51:30? (4)

TOTAL**[22]**

ANNEXURE A

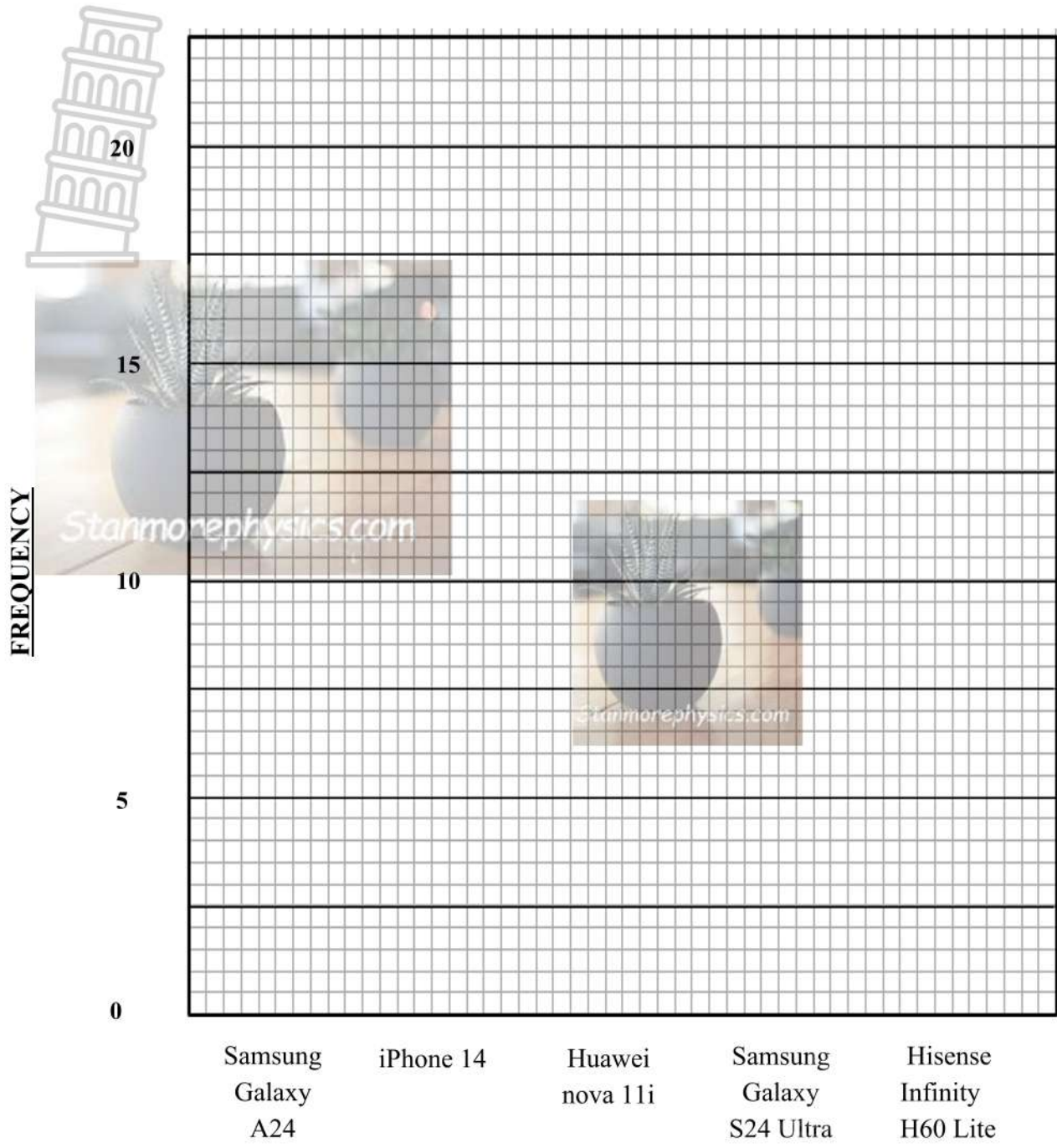
TALLY TABLE

	SMARTPHONE CATEGORY	TALLY	FREQUENCY	CUMMULATIVE FREQUENCY
1.	Samsung Galaxy A24			
2.	iPhone 14			
3.	Huawei nova 11i			
4.	Samsung Galaxy S24 Ultra			
5.	Hisense Infinity H60 Lite			
TOTALS				



ANNEXURE B

SMARTPHONE PREFERENCES PER CATEGORY



SMARTPHONE CATEGORIES



MATHEMATICAL LITERACY

MARKING GUIDELINES

TERM 1 2024 INVESTIGATION

Stanmorephysics.com

**NATIONAL
SENIOR CERTIFICATE**

GRADE 10

Stanmorephysics.com

MARKS: 50

SYMBOL	EXPLANATION
M	Method
M/A	Method with accuracy
CA	Consistent accuracy
A	Accuracy
E	Explanation
C	Conversion/Conclusion
S	Simplification
RT	Reading from a table / a graph / document/ diagram
SF	Correct substitution in formula
O	Opinion/ Explanation
P	Penalty, e.g., for no units, incorrect rounding off, etc.
R	Rounding off
NPR	No penalty for rounding/units
AO	Answer only
MCA	Method with constant accuracy

This marking guidelines consists of 5 pages.

QUESTION 1 [28]					
PART A (To be completed over 5 days outside the classroom)					
Ques	Solution	Explanation	Topic/Level		
1.1					
Questionnaire					
1	What is the most important feature for you in a smartphone?	✓	1 A mark for no 2 1 A mark for no 3 2 M marks for any two questions that are appropriate.	DH/TL3	
2	What phone are you currently using?	✓			
3	Which phone do you prefer most from the following 5 smartphones:	Tick ✓			
	3.1 Samsung galaxy A24				
	3.2 iPhone 14				
	3.3 Huawei nova 11i	✓			
	3.4 Samsung Galaxy S24 Ultra				
	3.5 Hisense Infinity H60 Lite				
4	How often do you use your smartphone?	✓			(4)
OR					
Questionnaire					
1	What learning applications do you use on your phone, if you have one?	✓	1 A mark for no 2 1 A mark for no 3 2 M marks for any two questions that are appropriate.		
2	What is the make of the phone are you currently using?	✓			
3	Which phone do you prefer most from the following 5 smartphones:	Tick ✓			
	3.1 Samsung galaxy A24				
	3.2 iPhone 14				
	3.3 Huawei nova 11i	✓			
	3.4 Samsung Galaxy S24 Ultra				
	3.5 Hisense Infinity H60 Lite				
4	Would you look forward to lessons if your teacher made use of online learning resources illustrate/explain concepts?	✓			(4)

1.2				
TALLY TABLE				
	SMARTPHONE CATEGORY	TALLY	FREQUENCY	CUMMULATIVE FREQUENCY
1.	Samsung Galaxy A24			
2.	iphone 14			
3.	Huawei nova 11i	✓	✓	✓
4.	Samsung Galaxy S24 Ultra			
5.	Hisense Infinity H60 Lite			
TOTALS			✓	✓
	1 A mark for writing correct tally of all phone categories 1 A mark for writing correct frequency for each phone category 1 CA for total frequency for all phone categories 1 A for correct cumulative frequency for each category 1 CA for total cumulative frequency (5)			DH/TL1
1.3	Refer to Learner’s tally table, since answer will depend of his/her in 1.2. ✓✓		2 CA for Modal smartphone 2 CA for stating “No Mode” (2)	DH/TL1
PART B(To be completed in class under controlled conditions)				
1.4	The teachers and learners. ✓✓ Or The whole school consisting of teachers and learners ✓✓		2 A marks for correct population (2) Accept: The whole school	DH/TL1
1.5	Categorical data. ✓✓		2 A marks for categorical data (2)	DH/TL1
1.6	$\text{Sample} = \frac{40}{360} = 11.1111\% = 11\%$		1 M for adding 350 to 10 1 CA for numerator 1 MA for dividing by 360 1 CA answer 1 R for rounding (5)	DH/TL3
1.7	No, ✓ because less than 20% of the school participated. ✓ No, ✓ because approximately 98% did not participate in the survey. ✓		1 A for choosing No 1 E for explanation (2)	DH/TL4
1.8	Refer to the learner’s Tally table and compare to Bar graph. ✓ ✓ ✓ ✓ ✓ ✓		5 CA marks for each phone category plotted and drawn correctly. 1 CA for drawing 5 bar graphs (6)	DH/TL2

	QUESTION 2[22]		
2.1	24 Months ✓✓ Or Twenty four months ✓✓	2 A marks for correct no of months (2)	F/TL1
2.2	Total subscription fees = R199 × 24✓ = R4 776✓	1 MA for multiplying 199 by 24 CA for answer (2)	F/TL2
2.3	It's the monthly amount that Jabulani must pay MTN for the duration of the contract. ✓✓ Or It's the monthly installment that is payable by Jabulani to MTN for 24 months. ✓✓	2 E marks for explanation (2)	F/TL1
2.4	Budgetted amount R300 Minus Subscription R199 Balance R101✓ Total estimated Data needed per month minus free data (1.5gig × 31 days) ✓ – 6gigs✓ = 40,5 gigs needed Cost for extra data = 40.5 × R16.5 = R668.25✓ He cannot afford ✓	1 A mark for balance of R101 1 MA for multiplying by 31 1 MA mark for subtracting the free data 1 CA for extra cost 1 C mark for conclusion Accept 30 days (5)	F/TL4
2.5	R668.25✓✓	CA from 2.4 above 2 CA marks for extra cost calculated (2)	F/TL 2
2.6	Average data per day = $\frac{6GIGS}{31\ Days}$ ✓ = 0,1935✓ ≈ 0,2 gigs His claim is correct✓ Or Average data per day = $\frac{6GIGS}{30\ Days}$ ✓ = 0,2 gigs ✓ His claim is correct. ✓	1 MA for dividing 6gigs by 31 days 1 CA mark for answer 1 C mark for conclusion 1 MA for dividing 6gigs by 31 days 1 CA mark for answer	F/TL4

		1 C mark for conclusion (3)	
2.7	$\text{Total} = R199 \times 2 \checkmark$ $= R398 \checkmark$	1 MA mark for multiplying by No 1 CA mark for final answer (2)	F/ TL4
2.8	<p>Duration of call = 15:51:30 - 15:45:00 = 06mins30seconds✓</p> <p>Cost of call = 6,5mins × R1.5✓ = R9,75</p> <p>Total installment = R199 + 9,75✓ = 208.75✓</p>	1 M mark for calculating duration of call 1 MA mark for multiplying by R1.5 1MA mark for add subscription cost 1 CA mark for total (4)	M/ TL2
	TOTAL	[50]	

