



**EXAMINATIONS AND ASSESSMENT CHIEF DIRECTORATE**

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## **2019 NSC CHIEF MARKER'S REPORT**

SUBJECT:	MATHEMATICAL LITERACY
PAPER:	1
DURATION OF PAPER:	3 HOURS
DATES OF MARKING:	30 NOVEMBER – 14 DECEMBER 2019

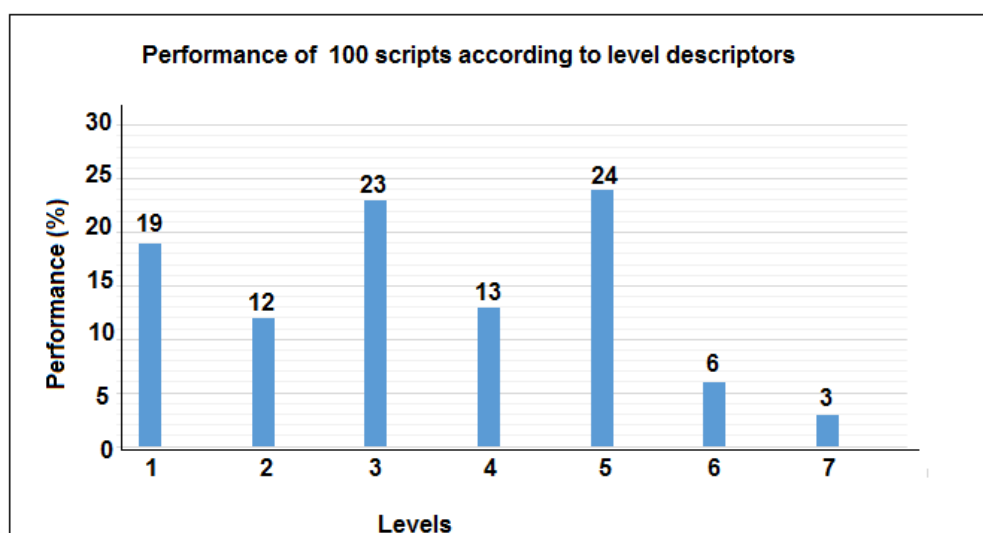
### **SECTION 1: (General overview of Learner Performance in the question paper as a whole)**

- Generally, the paper was fair, well balanced and the candidates performed well. Question 1 was well answered. The performance in measurement, however was still poor. Based on the rasch sample 80% achieved level 2 or above, but there remains a lack of achievement of level 7's.

The pass rate of the candidates from the Rasch sample show the following results:

Level	1	2	3	4	5	6	7
Numbers	19	12	23	13	24	6	3
Percentages	19%	12%	23%	13%	24	6%	3%

If the sample is a true representation of the population, then performance will be good around 81% pass in MLIT P1 though with low percentages pass in level 7 at 3%. The results from the sample are in line with result from sample used for pre-memo discussion.



*Ikamva eliqaqambileyo!*

The above data is illustrated on the graph for easy view. The sample show generally pass of 81%.

Most candidates use Paper I to boost their overall Maths Lit mark. Language, as with previous papers, was again a big concern. Candidates do not seem to comprehend the questions asked and therefore provide/calculate incorrect responses. This paper was easy and fair enough for all candidates to score well. It was thus very disappointing that this was not the case.

## SECTION 2:

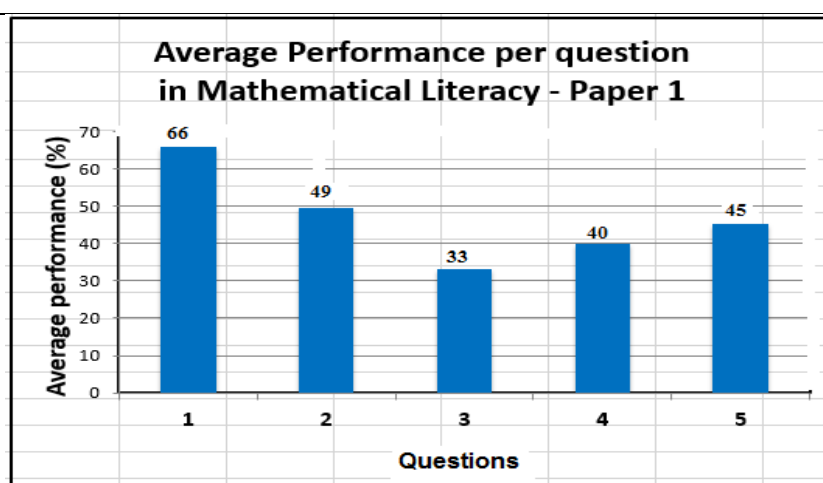
Comment on candidates' performance in individual questions

(It is expected that a comment will be provided for each question on a separate sheet).

## QUESTION 1

- (a) General comment on the performance of candidates in the specific question. Was the question well answered or poorly answered? Yes answered well especially In the following questions:

Performance of a random sample of 100 scripts marked for at the marking centre: Rasch sample.



1.1.3 Arranging all values in ascending order values was done correctly by most candidates.

1.1.4 Candidates understood the method of subtracting the increase in the disability allowances.

1.3 Most candidates did well – they understood clearly the whisker box given with percentages.

- (b) Why the question was poorly answered? Also provide specific examples, indicate common errors committed by candidates in this question, and any misconceptions.

1.1.1 Candidates were confused about choosing the type of data, most wrote categorical not numerical.

1.1.2 Candidates could not give the modal value (Language barrier), other candidates could not differentiate between mode and modal.

1.1.3 Candidates struggled in arranging values in Descending order. They left out some values. Reading the correct values from the table is still a problem for them. (extracting correct information)

1.1.4 Candidates have a problem in terminology like increase & decrease, they swap values subtracting the biggest value from the smallest value. They have a confusion on operation sign.

1.1.5 They lack reading skills ie. to read and understand the question – they were writing all the types instead of choosing only 2 as required.

1.2.1 Conversion is a serious problem in this question although it was an easy one.

1.2.2 Reading the correct values from the table was a challenge. Candidates did not understand the terms selling price, cost price and profit. They also have challenge in the context of rounding, e.g. Swopping of values, e.g. R10, 99 – R14, 30 = -R3, 31.

Some divided the values like

e.g. R14, 30 ÷ R10, 99 = R1, 30

1.2.3 A problem is in conversion, they mix units kilograms(kg) & grams(g).

Most candidates took 2,5 ÷ 250 instead of starting with a conversion.

1.2.4 Most candidates used cost price instead of selling price, problem is terminology.

Some candidates used Cost Price instead of Selling Price, e. g. R22, 99 ÷ 8 = R2, 87

1.4.1 Candidates could not express time in digital. Like 16:00 am that is not correct so they lost a mark on that. They wrote 16:00 pm instead of 16: 00 or 4 pm or 16 hrs.

### **(c) Provide suggestions for improvement in relation to Teaching and Learning**

Giving candidates more exercises with tables.

Re – introducing the drilling system especially in basic concept.

Emphasize the reading skills to candidates.

Teachers must be emphasized to teach the language of Mathematical Literacy not of Mathematics like formula in Compound Interest..

Teachers must lay a good foundation from Grade 10 and not focus on Grade 12.

Everyday life situations must be presented.

Practical examples must be used when teaching date handling.

Informal weekly tests must be done to identify those who understand and those who need attention. Feedback after each assessment must be done.

**(d) Describe any other specific observations relating to responses of candidates and comments that are useful to teachers, subject advisors, teacher development etc.**

Some of the wrong responses the candidates wrote were as follows:

1.1.2 Candidates wrote 2 or 3 values instead of one e.g. R1 780 and R1 800 & R1780, R1780, R1780

1.1.4 Swopping of values  $R1\ 695 - R1\ 780 = -85$ .

Dividing the values:  $R1\ 780 \div R1\ 695 = R1,05$

1.2.1 Most divided by 100 e.g.  $400 \div 100 = 4\text{ kg}$ . We need to focus on conversions.

1.2.2 Swopping of values, e.g.  $R10,99 - R14,30 = -3,31$ .

Some divide the values, e.g.  $R14,30 \div R10,99 = R1,30$

1.2.3 Most candidates took  $2,5 \div 250$  instead of starting with a conversion.

1.2.4 Some candidates used Cost Price instead of Selling Price,

e.g.  $R22,99 \div 8 = R2,87$

1.3.2 Swopping values – it means they don't know the meaning of the Range

e.g.  $64 - 84 = -20\%$ .

1.4.1. Time is a challenge.

They wrote 16:00 pm instead of 16:00 or 4 pm or 16 hrs.

Conducting workshops on specific difficult areas such as measurement & finance.

The teachers who were appointed as markers should share information to their district colleagues on how to mark in order to improve performance at school level.

Diagnostic report must be presented to educators in workshops.

Form clusters and invite Subject Advisors to help where necessary.

QUESTION 2
(a) General comment on the performance of candidates in the specific question. Was the question well answered or poorly answered?
<p>The question was answered fairly with 49% as from the sample done. Candidates struggled to give the correct unit of measurement for the municipality asked as they are used to kilolitres in their municipality statements. They struggled to work with big numbers.</p> <p>2.1.1 The place value and number format were not correct in most cases. Language barrier plays a huge role in these types of questions.</p> <p>2.1.2 Some candidates still use VAT as 14%. A lot of candidates used the area to calculate the amount. Quite a few candidates still don't understand the concept of VAT and percentage in general. Rounding off the numbers should be taught by teachers, especially when it comes to money, candidates should round off to two decimal places.</p> <p>2.1.3 Most candidates got this question wrong. Most candidates were not able to read and understand the table.</p> <p>2.1.4 Very few candidates got this answer correct. Candidates don't municipal municipal accounts.</p> <p>2.1.5 A stepped tariff is always a problem</p> <p>2.2.1 The word "type" made some candidates understand that they had to describe the graph, with many of the candidates saying that it was a "decreasing" graph. Although the question clearly asks type of proportion. Some candidates still described the curve of the graph</p> <p>2.2.2 Most candidates got this answer correct.</p> <p>2.2.3 Most candidates got this answer correct.</p> <p>2.2.4a) Most candidates got this answer correct. b) Some candidates tried to do a calculation in this question. c) A lot of candidates tried to use the compound interest formula (not part of CAPS) to calculate simple interest. d) Many candidates used the next table or used values instead of interest rates. e) Well answered, but many said 1 year 5 months. Many candidates struggled to convert years into months.</p> <p>2.3.1 Some candidates did not know how many zeros a billion has.</p> <p>2.3.2 Well answered, although some candidates put in some zeros. In the Afrikaans paper it asked for the "waarde" which could mean the actual number.</p> <p>2.3.3 Well answered. Some candidates stopped in the middle of the sum, while the instructions asked to show ALL calculations.</p> <p>2.3.4 Many candidates swapped the numerator and denominator. Many candidates used the percentage change formula.</p>

(b) Why the question was poorly answered? Also provide specific examples, indicate common errors committed by candidates in this question, and any misconceptions.
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Some candidates lack the understanding of questions or they repeat the question.

Some candidates still struggle when writing big numbers. They confuse hundreds with thousands, millions and billions.

Lots of candidates struggle with tariffs. Only a handful could calculate the 6,4,2 kilolitres in Q2.1.5. Few could identified 8,28; 8,79 and 15. Very few got full marks for this question. Some didn't understand the sliding scale for calculating water.

In 2.2.1 although the question clearly asks type of proportion. Some candidates still described the curve of the graph.

In 2.2.4c some candidates used a formula. Others didn't round off to the nearest R100.

Instead of rounding 4233 to 4200. They rounded to R4320.

Some still struggle with rounding.

**(c) Provide suggestions for improvement in relation to Teaching and Learning**

Splitting the two papers according to topics is very good. Candidates will perform better when they can learn fewer topics and sections for on exam.

Educators must adhere to what DBE wrote in diagnostic report that of having a special book for definitions or using the last page of their classwork book.

Using English when teaching definitions is very important. Candidates must also practice reading newspapers and actual statements in class.

Teachers must practice the basics, especially in grade 10. For example, percentages must be calculated by multiplying by 100.

Candidates should be made aware of the number of marks (as per CAPS document) awarded for each question in order to understand the amount of work that needs to be covered for learning.

Candidates must be actively involved in drawing graphs in class, so that candidates understand the basics of reading graphs and tables.

Homework is discouraging to be actively involved in a lesson as they copy the work from each other.

Teachers need to practice past exam papers with their candidates. Teachers also need to assist in improving writing skills with candidates, eg. leaving spaces between questions, etc.

**(d) Describe any other specific observations relating to responses of candidates and comments that are useful to teachers, subject advisors, teacher development etc.**

Basic calculations couldn't be performed by candidates.

The compound interest formula is still often used suspecting those candidates who did Maths in grade 11 and changed to Maths Lit in grade 12.

Percentage calculations was a problem. Conversions and rounding off still seems to be problematic. Candidates still struggle with reading from a table/graph. Candidates should be made aware that when a question states that they must show all calculations, they need to show ALL calculations as stated in the question paper otherwise they will lose marks.

Answer only can lead a candidate to lose marks.

Teachers must consult their CAPS document more often and use it as a guide.

Focus must not be on the textbook when teaching and learning is taking place, but more focus must be on what is going to be examinable and for general knowledge. Subject advisors should conduct more content-based workshops like water tariffs, reading from table/graphs, etc.

Give 'team teaching' a try, neighbouring schools rotating when someone who excels in a certain topic rotates to another school, etc.

Before you go teaching, gather as a CMC and discuss topics to teach, how you will approach teaching that specific content especially when it comes to difficult topics.



<b>QUESTION 3</b>
<p><b>(a) General comment on the performance of candidates in the specific question.</b></p> <p><b>Was the question well answered or poorly answered?</b></p> <p>Performance for Question 3 was poor. Candidates struggle with Measurement. We also found that the basic concept of conversions was a problem. Candidates did not know how to convert between mm, cm and m. Converting area and volume was a problem as well. Language is still a problem as candidates struggle to express themselves when asked a definition. It makes the definition very difficult to mark.</p>
<p><b>(b) Why the question was poorly answered? Also provide specific examples, indicate common errors committed by candidates in this question, and any misconceptions.</b></p> <p>Question was poorly answered.</p> <p>3.1.1) Candidates struggle to express themselves when asked the definition.</p> <p>3.1.2) Candidates did not know how to correctly convert mm &amp; cm to m. They could also not convert the area and volume units.</p> <p>3.2.1) Most candidates calculated the area using the dimensions given in 3.2 instead of referring back to the original diagram. Candidates did not multiply by 12 or they multiplied 50 cm by 12 first and then substitute into the formula.</p> <p>3.2.2) Second part of the sum was omitted in most scripts. Candidates were able to calculate the area of the walkway, but they did not subtract the cement blocks.</p> <p>3.2.3) 20kg given confused the candidates. Many candidates multiplied instead of dividing. Rounding up was a problem. Concept of needing more pebbles was lacking.</p> <p>3.3.1) Candidates used 610mm, which indicates they don't know how to distinguish between length and breadth/width.</p> <p>3.3.2) Candidates only multiplied by 2 or calculated the area. Used radius instead of side length.</p> <p>3.3.3) Candidates did not realize they had to calculate the diameter first, so they just divided by the radius. They used perimeter to divide with, which indicates a lack of understanding. Diagram was unclear.</p> <p>3.3.4) Poorly answered. Candidates struggled to interpret this question as it was based on a mathematical equation. Most candidates just multiplied the values given in the question – <math>2 \times \frac{3}{4}</math>. Some candidates only calculated up to 37cm and then multiplied with <math>\frac{3}{4}</math> instead of the inverse.</p>
<p><b>(c) Provide suggestions for improvement in relation to Teaching and Learning</b></p>

3.1.1) Give definitions as multiple choice. Teachers must make use of Mind the Gap as definitions are given at the back of the book.

3.1.2) Teachers must spend more time teaching candidates to convert between area and volume measurements.

3.2.1) Apply practical examples in class. Make candidates measure windows etc. in classroom.

3.2.2) Teachers have to prepare their lessons beforehand to ensure they cover all the different options to calculate specific scenarios.

3.2.3) Teachers must have a bank of old question papers to use in class for candidates to practice. Text book exercises don't always prepare candidates for questions asked in external papers.

3.3.1) Teachers must show candidates the difference when working with length and breadth. Spend time on basic conversions in lower grades.

Candidates must learn perimeter formula by heart or just knowing the meaning of it.

3.3.3) Practical examples must be shown in class.

3.3.4) Teach candidates how to interpret word problems as done in Grade 8 and Grade 9 Mathematics. Reading the sentence and then substituting it with values.

**(d) Describe any other specific observations relating to responses of candidates and comments that are useful to teachers, subject advisors, teacher development etc.**

Teachers should be supplied with the Chief Marker's report and the diagnostic reports when schools open for 2020 or send it via technology so that they can know what the problem areas were during the 2019 marking procedure.

Teachers must engage candidates in analyzing and answering Level 3 questions.

Explain to candidates how to round off according to the context.

Help candidates read with understanding – make them explain the question after they have read it.

3.1 Most defined volume as if it is capacity. Conversion remained a challenge for example some candidates wrote  $50 \text{ cm} = 50 \times 100 = 5000 \text{ m}$

Or  $50 \times 50 \times 80 = 200\,000$  (80 mm not converted)

Or  $5,0 \times 5,0 \times 8,0 = 200$

3.3.2  $18,5 \times 2 = 37 \text{ cm} \times \frac{3}{4} = 27,75$

3.3.3  $18,5 \div 1,85 = 10$  (majority of candidates)

<b>QUESTION 4</b>
<b>(a) General comment on the performance of candidates in the specific question.</b> <b>Was the question well answered or poorly answered?</b>
<p>Most candidates got 50% (12/24). Sample showed 40% passed with is not good.</p> <p>The question was answered poorly due to the language barrier and misconception of Map work and scale.</p> <p>Time conversion and correct term/word to express probability; zero is not none.</p>

<b>(b) Why the question was poorly answered? Also provide specific examples, indicate common errors committed by candidates in this question, and any misconceptions.</b>
<ul style="list-style-type: none"> <li>• Very few candidates gave the answer given on the memo. Most candidates referred to the key given on the annexure to answer this question. Maybe "Described" instead of "Name" should've been used then.</li> <li>• Candidates did not notice the direction pointing downwards, thus they had to turn the annexure upside down to find the correct answer.</li> <li>• Question was answered very well. Most candidates could identify 5 restaurants. Some candidates did not include restaurant in circle Z they treated Z as the area that shows them what was there.</li> <li>• Spelling aside, candidates could not identify the correct type of scale. (bus, buns, buzz, bra barre were mentioned by candidates)</li> <li>• Candidates interpreted the question incorrectly. They also ignored the given map distance which is 10 cm vs using a ruler and came up with 10, 5. They did not measure the bar scale. The problem of rounding off to the nearest km. No candidate has got zero to this question. Mostly, attempted the question.</li> <li>• Most candidates forgot to multiply distance by 2 or 20 minutes by 2. Few candidates got 40 minutes. Incorrect substitution in the formula due to carelessness.</li> <li>• Wrong conversion from hours to minutes.</li> <li>• 4.2.2 Had so many options but we need to teach all that concerns maps.</li> <li>• This question confused most candidates for they mistakenly treated the floor plan as a structure/building. Most of them got 5 due to their misunderstanding.</li> <li>• Memo was a bit unfair on English speaking as against Afrikaans speaking candidates.</li> <li>• Marks allocation should have been 1 mark for the numerator and 1 mark for the denominator, P (room with 2 beds) = 0/5 base on the total of all the rooms.</li> </ul>

Probability concept. The two pillows in bedroom 2 gave the impression that, there are two single beds hence they gave an answer as  $1/2$ .

**(c) Provide suggestions for improvement in relation to Teaching and Learning**

- Teaching should be centralized or using CAPS document instead of using different textbooks.
- All topics are thoroughly explained with examples in CAPS document as compared to textbook. CAPS document tells you what to teach for each and every topic with suitable examples. Textbooks should be used for different explanations when planning for vocabulary exposure. In depth teaching in all topics as compared to shallow teaching will enhance their understanding or knowledge. More practical should be conducted when dealing with the scale e.g. a photograph can be used as a perfect example for any object; and the candidates are familiar with "Selfies".
- Integration across the subjects e.g. Geography in terms of the scale.

**(d) Describe any other specific observations relating to responses of candidates and comments that are useful to teachers, subject advisors, teacher development etc.**

- Candidates did not notice the North arrow showing down, it could have been bigger and more visible. Candidates were unable to calculate the actual distance using a bar scale, as they were only used to ration scale. Educators need to explain all types of scales, let candidates measure the bar scale and give different problems. Clustering of nearby schools or educators could make a big difference in learner understanding.
- Candidates need to be introduced to different types of maps and scales.
- Teachers workshops to bridge the content gap for new Maths Lit teachers.
- Correct substitution in formula and conversions should be done as early as in grade 10. Candidates should be given more activities in this as they lose marks unnecessarily.
- Candidates must be exposed to working out more exam papers. This will practice the reading skills and the different ways one thing can be asked.

<b>QUESTION 5</b>
<p><b>(a) General comment on the performance of candidates in the specific question.</b></p> <p><b>Was the question well answered or poorly answered?</b></p>
<p>5.1.1) Poorly answered. Very few candidates scored full marks in this question. This was probably due to the fact that educators did not put enough focus was put on teaching the methods of collecting data.</p> <p>5.1.2) Poorly answered. Candidates are unable to do simple adding correctly. In a lot of cases they write and add the correct values but write an incorrect answer. Some candidates do not know which value to subtract from, whether 100 or even 360 in some cases. Candidates should also be taught not to switch numbers when they subtract, e.g. <math>76,6 - 100</math>.</p> <p>5.1.3) Poorly answered. Candidates were unable to read the values in the diagram which resulted in most candidates subtracting from 100% instead of 11,2%.</p> <p>5.1.4) Poorly answered. Candidates struggle to identify and write the value of 91,16 million as a full number. They clearly struggle with place values, especially numbers in millions and billions. The correct concept of calculating percentage is also misunderstood by candidates.</p> <p>5.1.5) Question was answered well. Some candidates mentioned anything that can be recycled, whether it was a metal or not.</p> <p>5.1.6) Well answered. A few candidates answered histogram while others mentioned any type of graph without considering the given data.</p> <p>5.1.7) Poorly answered. Most candidates did not understand the concept of probability, especially in this context. Most of them just counted the sectors of the pie chart instead of using the percentages given to them. A lot of them also left their answer in fraction form instead of decimal form as stated in the question.</p> <p>5.2.1) Well answered. Most candidates read the correct values from the table. Some of them, instead of giving the total delegates, wrote down the number of delegates individually. This was probably due to how the question was asked.</p> <p>5.2.2) Question was well answered. Most candidates identified the correct values but got the order of the ratio incorrect. Some candidates struggle to simplify the ratio.</p> <p>5.2.3) Well answered by most candidates. Some candidates were simply just lazy to read from the table and give the correct answer.</p> <p>5.2.4) Well answered. Only a couple of candidates drew a histogram. Graph was simple to draw due to the nature of the scale which was easy to understand.</p>
<p><b>(b) Why the question was poorly answered? Also provide specific examples,</b></p>

**indicate common errors committed by candidates in this question, and any misconceptions.**

In 5.1.1 candidates mentioned types of graphs, e.g. a pie chart, bar graph. They think about illustration of information instead of the method of collecting data.

In 5.1.6 they have a tendency of giving more than one option or use OR or AND.

In 5.1.7 probability is a challenge for candidates. They divide by 8,5 instead of 11,2 which results in an answer greater than 1.

In 5.2.2 candidates get the order of the ratio incorrect, 27:33 instead of 33:27. They also struggle to simplify the ratio correctly.

**(c) Provide suggestions for improvement in relation to Teaching and Learning**

Teachers must ensure that everything stipulated in CAPS document must be taught. Teachers must not only focus on favourite or easy sections while rest are not taught or left to candidates to do self-study. Candidates must be exposed more to exam type of questions during the course of the year and not only in preparation for the trial and final exams. Teachers must have a question bank to draw from when covering the different sections/topics of the curriculum.

**(d) Describe any other specific observations relating to responses of candidates and comments that are useful to teachers, subject advisors, teacher development etc.**

Unfortunately, not all candidates have a calculator which results in the fact that a lot of them do not know how to operate one further resulting in incorrect calculations and answers. Candidates also lose marks unnecessarily because they write answers only instead of showing their work. Candidates from remote areas are disadvantaged due to the formulation of certain questions in the paper like 5.1.5. They also lost marks because they forgot or just didn't include the units, as is the case in q.5.1.4 million tons. The response of the candidates in the graph was very good, probably because of the clear and easy to understand the given scale.

Language is still a barrier and something must be done drastically to improve this problem. Reading clubs must be formulated in schools. Teachers must ensure that candidates read more by creating platforms at their different schools. If they understand and comprehend the question better, they could certainly improve much better in the paper. Expose candidates regularly to different exam questions so that they become confident when exam time arrives.