

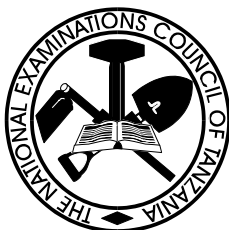
THE NATIONAL EXAMINATIONS COUNCIL OF TANZANIA



**CANDIDATES' ITEM RESPONSE ANALYSIS
REPORT FOR THE PRIMARY SCHOOL LEAVING
EXAMINATION (PSLE) 2019**

MATHEMATICS

THE NATIONAL EXAMINATIONS COUNCIL OF TANZANIA



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REPORT FOR THE PRIMARY SCHOOL LEAVING
EXAMINATION (PSLE) 2019**

04E MATHEMATICS

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FOREWORD

The Candidates' Response Analysis Report for Primary School Leaving Examination (PSLE) in the year 2019 was prepared in order to give feedback to educational stakeholders on how the candidates answered the examination questions.

The analysis of the candidates' responses was conducted in order to identify the topics which were well, averagely and poorly performed. The analysis shows that 05 topics of *Whole Numbers*, *Roman Numbers*, *Coordinate Geometry*, *Decimal Numbers* and *Fractions* had a good performance; 05 topics of *Squares and Square roots*, *Statistics*, *Integers*, *Money* and *Percentages* had an average performance and 03 topics of *Algebra*, *Geometry* and *Units* were poorly performed.

Furthermore, the analysis shows that the candidates' poor performance to such factors as failure to formulate equations from word problems and geometrical figures, to apply formulae for finding the area of a circle, triangle, square and the surface of a rectangular prism; and inability to find the volume of a cylinder as well as to change various units.

The National Examinations Council of Tanzania believes that this report will help to improve the candidates' performance in future Mathematics examinations.

Finally, the Council would like to thank all the examination officers and other experts who participated in preparing this report.

Dr. Charles E. Msonde
EXECUTIVE SECRETARY

1.0 INTRODUCTION

The Primary School Leaving Examination of the Mathematics subject was held on 11th of September 2019. In that sitting, a total of 933,314 candidates were registered, out of which 932,136 (99.87%) candidates sat for the Mathematics examination. The analysis of the examination results shows that 605,588 (64.97%) candidates passed. In 2018, a total of 944,151 candidates sat for the Mathematics examination, of which 622,718 (66.02%) candidates passed. These results show that the candidates' performance for 2019 has dropped by 1.05 percent compared to the 2018 performance. The comparison of the candidates' performance for the year 2018 and 2019 is shown in the Chart No. 1.

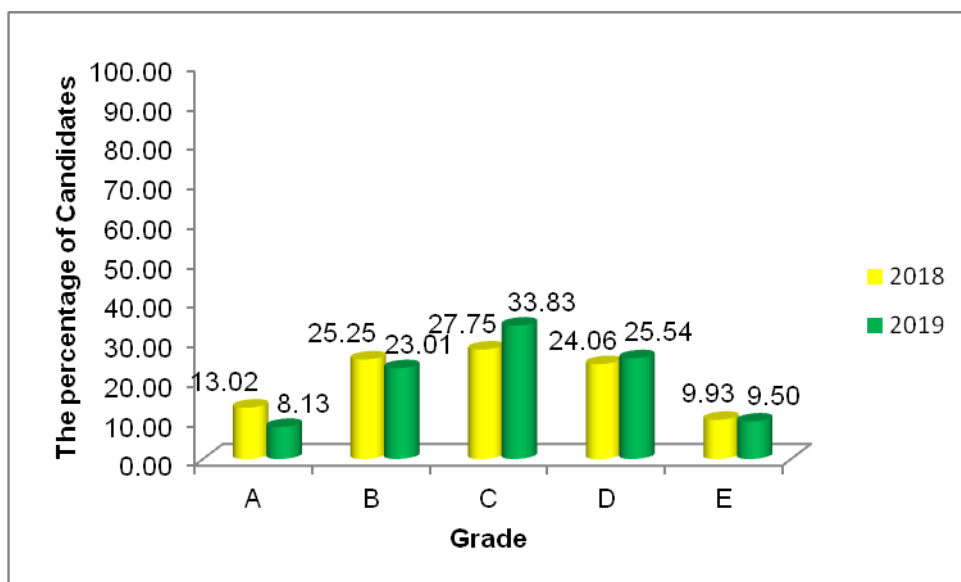


Chart No.1: *Comparison of the candidates' performance grades for 2018 and 2019 examinations.*

The Primary School Leaving Examination in the Mathematics subject held in 2019 consisted of Sections A and B, with a total of 45 questions covering mathematical operations, figures and word problems. Section A had 40 multiple choice questions carrying 01 mark each, whereas Section B had 5 short answer questions each carrying 02 marks.

The candidates were instructed to answer all questions in both sections. In Section A, the candidates were required to work out the answer in each question and then shade the letter of the correct

answer in the Optical Mark Reader (OMR) forms. In Section B, they were required to work out the answer in each question by showing the work in the space provided.

The candidates' responses in Section A were analysed and their performance was categorised in three classes according to the percentage of the candidates who correctly answered a particular question as follows: 60 - 100 percent is categorised as good performance, 40 - 59 percent as average performance and 0 - 39 percent as weak performance. In Section B, the analysis of the candidates' performance was done by considering percentage of the candidates who scored at least 50 percent of the marks for each question, that is, from 1 to 2 marks.

In this report, Charts and Tables were used to present data on candidates' performance. In Tables and on histograms, asterisk (*) is placed beside the correct answer for the multiple choice questions. Moreover, the word "Others" denotes the candidates who either chose more than one option or did not respond to the question. Also, in the analysis tables and figures, the green, yellow and red colours represent good, average and poor performance, respectively.

Finally, the report shows the comparison of candidates' performance topic-wise in 2018 and 2019, and provides recommendations for the improvement of candidates' performance in future Mathematics examinations.

2.0 ANALYSIS OF THE CANDIDATES' RESPONSES

The analysis of the candidates' responses has been done in each examined item. In Section A, the candidates were required to work out the answer for each item and choose the correct answer from the given five options. The analysis was done basing on the number of candidates who chose the correct answers, distracters, those who did not follow the given instructions and those who omitted the questions.

In Section B, the candidates were required to show the method used to get the answer. In this section, the analysis was done basing on the number of candidates who scored 0, 0.5, 1.0, 1.5 or 2.0 marks as well as those who did not follow the given instructions or omitted the question.

2.1 Section A: Multiple Choice Items

Question 1: $56 + 467 + 1,307 =$

A 1,710 B 1,730 C 1,824
D 1,829 E 1,830.

This question tested the candidates' ability to add whole numbers. A total of 821,940 (88.07%) candidates chose the correct answer E "1,830". Therefore, the candidates had good performance in this question. Chart No. 2 shows the candidates' percentage for each option.

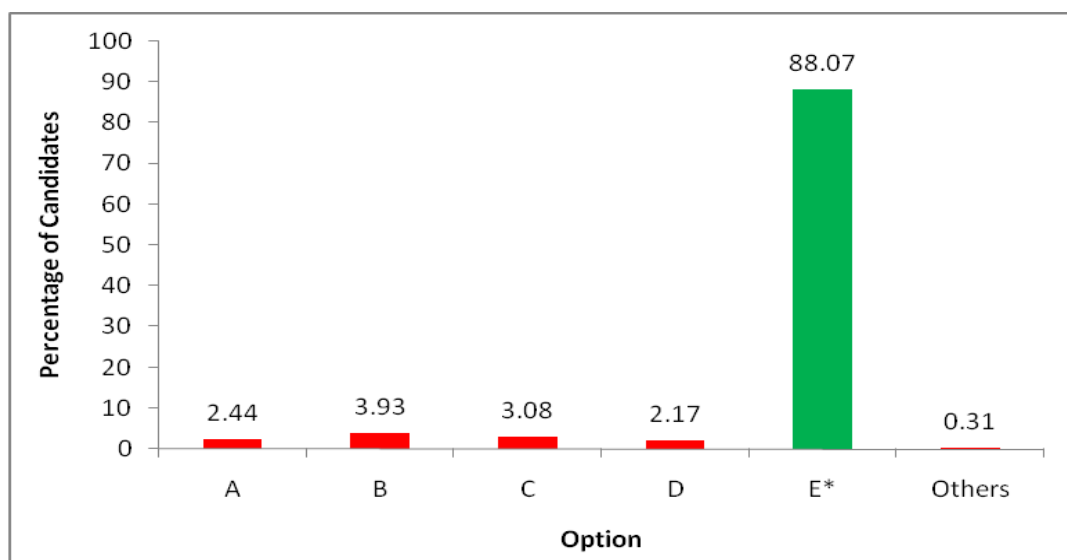


Chart No. 2: *Percentage of candidates for each option.*

Majority of the candidates who chose the correct answer were able to arrange the numbers vertically and add the ones, tens, hundreds and thousands by carrying as follows:

$$\begin{array}{r} 5 \ 6 \\ 4 \ 6 \ 7 \\ +1 \ 3 \ 0 \ 7 \\ \hline 1 \ 8 \ 3 \ 0 \end{array}$$

However, 111,374 (11.62%) candidates chose the incorrect answers A, B, C or D. Also, 1,538 (0.16%) candidates did not attempt the question and 1,320 (0.15%) candidates did not adhere to the given instructions. These candidates had insufficient knowledge and skills on how to add whole numbers by carrying. For example, the candidates who chose the distractor B “1,730” did not carry 1 from sum of tens to hundreds. Their work was as follows:

$$\begin{array}{r} 5 \ 6 \\ 4 \ 6 \ 7 \\ +1 \ 3 \ 0 \ 7 \\ \hline 1 \ 7 \ 1 \ 0 \end{array}$$

Question 2: $60,114 - 42,987 =$

- A 18,237 B 17,127 C 18,027
D 18,127 E 18,137.

The question tested the candidates' ability to subtract whole numbers. Chart No. 3 shows the percentage of candidates for each option.

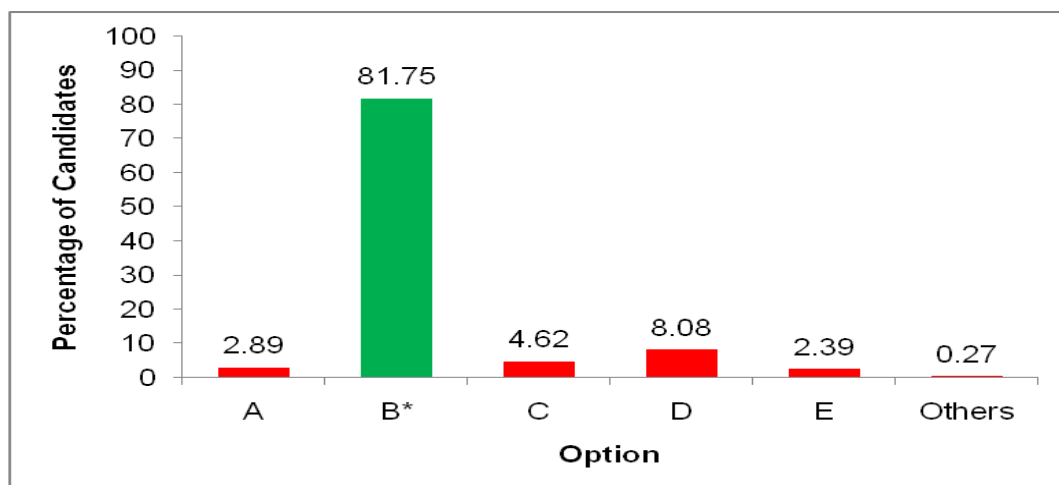


Chart No. 3: *Percentage of candidates for each option.*

The candidates' performance in this question was good as 762,984 (81.75%) candidates chose the correct answer B "17,127". This indicates that the candidates had sufficient knowledge and skills on subtraction by borrowing. These candidates answered this question as follows:

$$\begin{array}{r} 60114 \\ - 42987 \\ \hline 17127 \end{array}$$

On the other hand, 167,796 (17.98%) candidates chose the distractor A, C, D or E, 1,331 (0.14%) candidates did not adhere to the given instructions and 1,203 (0.13%) candidates omitted this question. Most of them did not reduce 1 from the digit of a particular place value after borrowing. For example, some candidates did not reduce a digit of thousands by 1 after borrowing, hence they chose the distractor D "18,127".

Question 3: $109.2 \div 6 =$

- A 18.2 B 1.82 C 0.182
D 0.0182 E 182.0.

The question tested the candidates' ability to divide decimals. The analysis of data shows that 656,764 (70.37%) candidates chose the correct answer A "18.2". Therefore, the candidates had a good performance in the question. The of candidates' percentage for each option is shown in Chart No. 4.

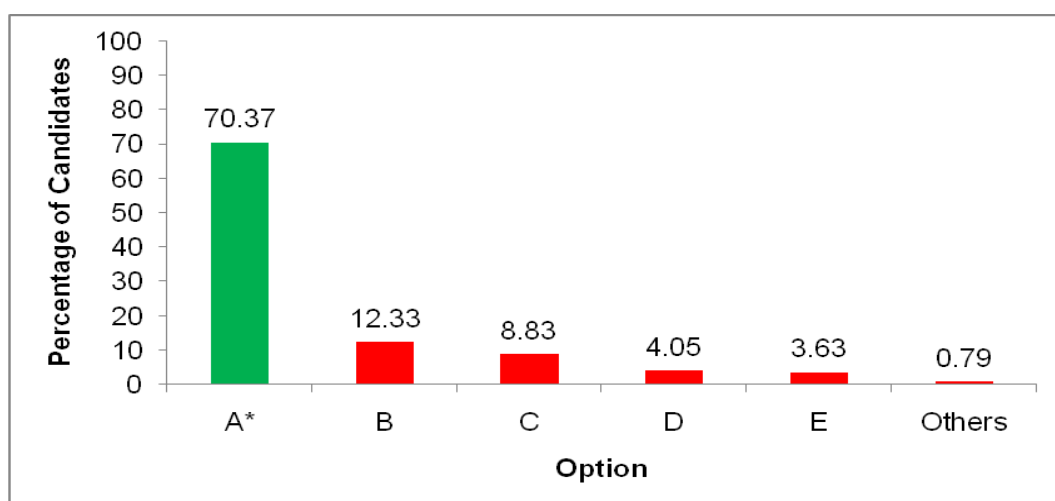


Chart No. 4: *Percentage of candidates for each option.*

The candidates who attempted this question correctly were able to eliminate decimal places as follows: $\frac{109.2}{6} = \frac{109.2 \times 10}{6 \times 10} = \frac{1092}{60}$. Then, they divided 1092 by 60 to get 18.2.

Conversely, 269,145 (28.84%) candidates chose the distractor B, C, D or E. These candidates did not adhere to the procedures of eliminating decimal places. For instance, the candidates who chose the distractor B “1.82” made errors in counting the decimal places. Also, 1,869 (0.20%) candidates did not answer this question as per the given instructions and 5,536 (0.59%) candidates did not answer this question.

Question 4: $87 \times 102 =$

- A 8,774 B 8,764 C 8,874
D 8,864 E 8,884.

The question tested the candidates’ ability to multiply whole numbers. Chart No. 5 shows the percentage of candidates in each option.

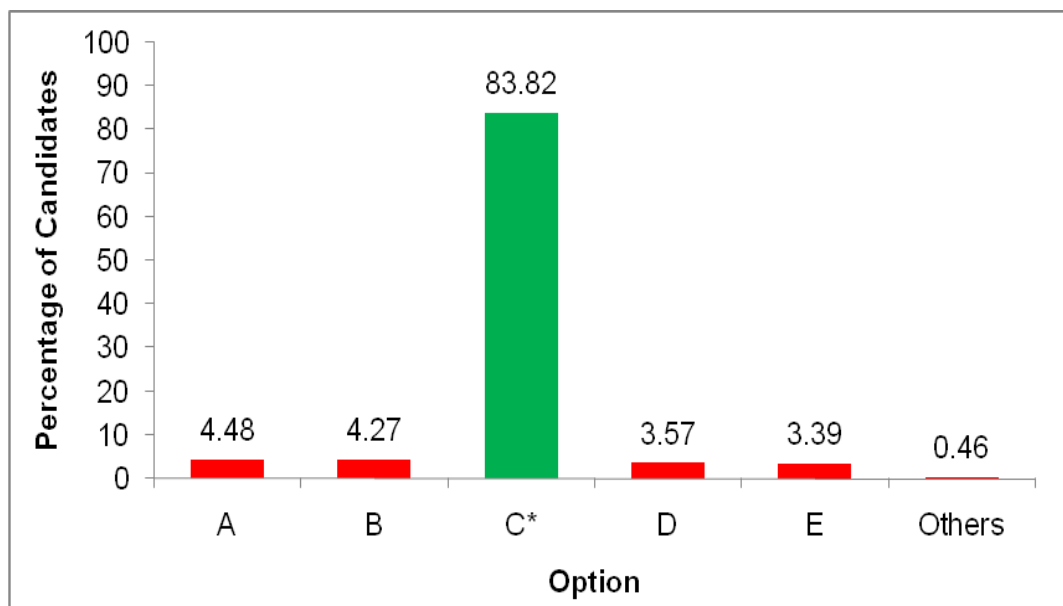


Chart No. 5: *Percentage of candidates for each option.*

As shown in Chart No. 5, the candidates’ performance in this question was good. A total of 782,327 (83.82%) candidates chose the correct answer C

“8,874”. These candidates had sufficient knowledge and skills in multiplying whole numbers.

Despite candidates' good performance, 146,721 (15.72%) candidates chose the incorrect option A, B, D or E; 1,858 (0.20%) candidates responded contrary to the instructions and 2,408 (0.26%) candidates did not attempt this question. Most of these candidates were unable to perform mathematical operations correctly, especially addition. For example, some candidates chose the distractor A “8,774” after writing the sum of 1, 0 and 7 as 7 instead of 8. They did as follows:

$$\begin{array}{r}
 8 \ 7 \\
 \times \ 1 \ 0 \ 2 \\
 \hline
 1 \ 7 \ 4 \\
 0 \ 0 \\
 + 8 \ 7 \\
 \hline
 8 \ 7 \ 7 \ 4
 \end{array}$$

Question 5: $1\frac{1}{7} + 3\frac{1}{7} =$

A $3\frac{1}{49}$

B $4\frac{2}{49}$

C $4\frac{1}{14}$

D $4\frac{1}{7}$

E $4\frac{2}{7}$

The question tested the candidates' ability to perform addition in mixed fractions. The candidates' performance in this question was good since 643,602 (68.96%) candidates chose the correct answer E “ $4\frac{2}{7}$ ”. The following chart shows the candidates' percentage for each option.

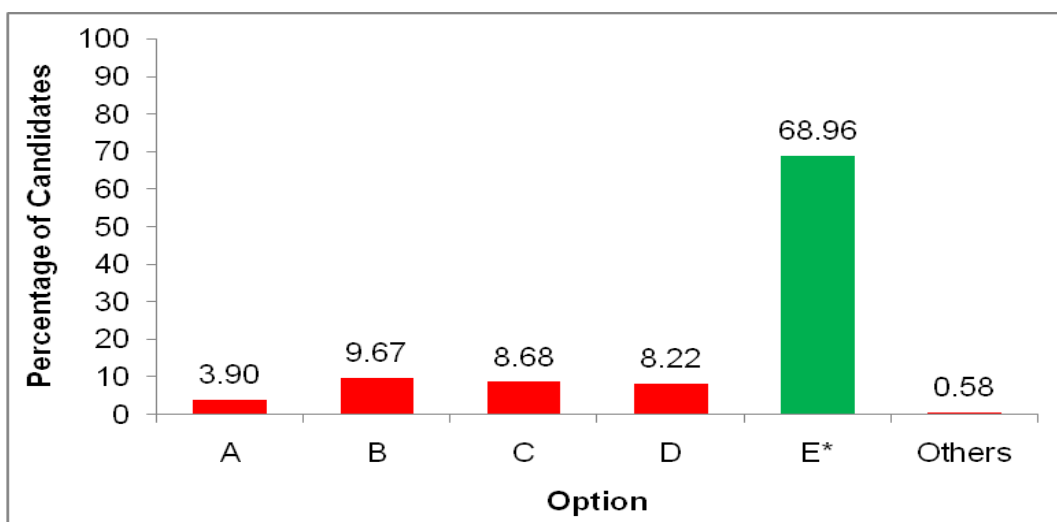


Chart No. 6: *Percentage of candidates for each option.*

The candidates who responded to the question correctly realized that the fractions $1\frac{1}{7}$ and $3\frac{1}{7}$ have the same denominator. Therefore, they calculated the sum of the whole numbers 1 and 3 to get 4 and the sum of the fractions $\frac{1}{7}$ and $\frac{1}{7}$ to get $\frac{2}{7}$. Finally, they added 4 and $\frac{2}{7}$ to get the correct answer E " $4\frac{2}{7}$ ".

Conversely, 284,329 (30.46%) candidates chose the incorrect alternatives A, B, C or D; 2,894 (0.31%) candidates did not follow the given instructions and 2,489 (0.27%) candidates did not respond to this question. Most of these candidates added the whole numbers ($1+3=4$) and numerators ($1+1=2$); and multiplied the denominators ($7\times 7=49$). Thus, they chose the incorrect option B " $4\frac{2}{49}$ ". Other candidates put together the sum of whole numbers ($1+3=4$) and the fraction $\frac{1}{7}$ and so they opted for the distractor D " $4\frac{1}{7}$ ". Also, some candidates added the whole numbers and denominators separately, hence they chose the distractor C " $4\frac{1}{14}$ ". In addition, a few candidates multiplied the whole numbers ($1\times 3=3$),

numerators ($1 \times 1 = 1$) and denominators ($7 \times 7 = 49$). This mistake led them to choose the distractor A “ $3\frac{1}{49}$ ”.

Question 6: $2\frac{3}{4} - 1\frac{1}{2} =$

A $1\frac{1}{2}$ B $1\frac{1}{3}$ C $1\frac{1}{4}$

D $1\frac{3}{8}$ E $1\frac{2}{3}$.

The question tested the candidates' ability to subtract mixed fractions. Chart No. 7 shows the candidates' percentage for each alternative.

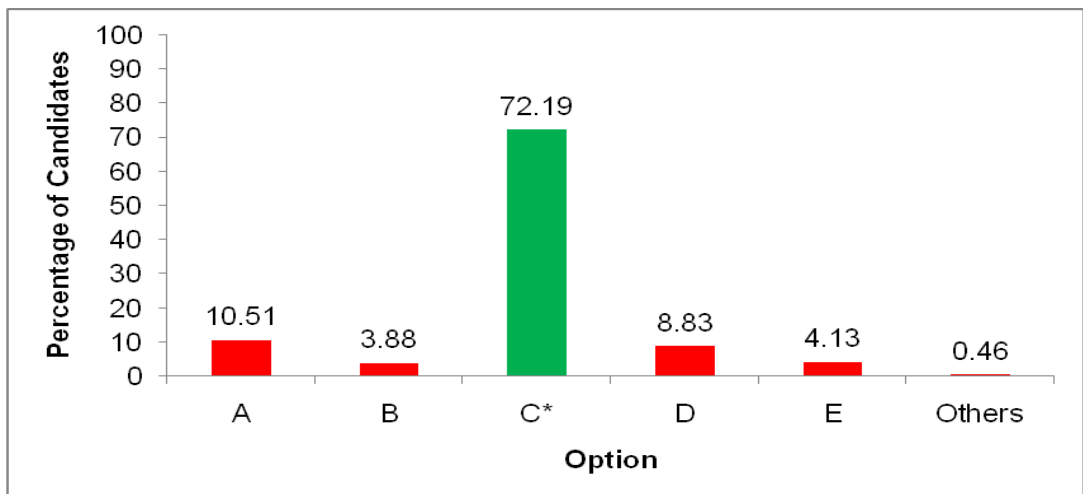


Chart No. 7: *Percentage of candidates for each option.*

As shown in Chart No. 7, a total of 673,779 (72.19%) candidates chose the correct answer C “ $1\frac{1}{4}$ ”. Therefore, the candidates' performance in this question was good. The correct answer was calculated as follow:

$$2\frac{3}{4} - 1\frac{1}{2} = (2 - 1) + \left(\frac{3}{4} - \frac{1}{2}\right) = 1 + \frac{3-2}{4} = 1 + \frac{1}{4} = 1\frac{1}{4}$$

On the other hand, the analysis shows that 255,273 (27.35%) candidates chose the incorrect alternative A, B, D or E whereby the distractor A attracted many candidates. This shows that the candidates failed to adhere

to the correct procedures of subtracting fractions after finding the Lowest Common Multiple (LCM) correctly. Other candidates chose the distractor B, D or E due to failure to determine the LCM of 4 and 2 as most of them got LCM=8 or LCM=3 instead of LCM=4. Also, 2,239 (0.24%) candidates answered the question contrary to the given instructions and 2,023 (0.22%) candidates omitted the question.

Question 7: $7 - (-3) + 2 - 14 =$

- A -22 B -2 C 4
D 10 E 2.

The question tested ability of the candidates to perform addition and subtraction on integers while adhering to BODMAS. The percentage of candidates in each alternative and others are shown in Chart No. 8.

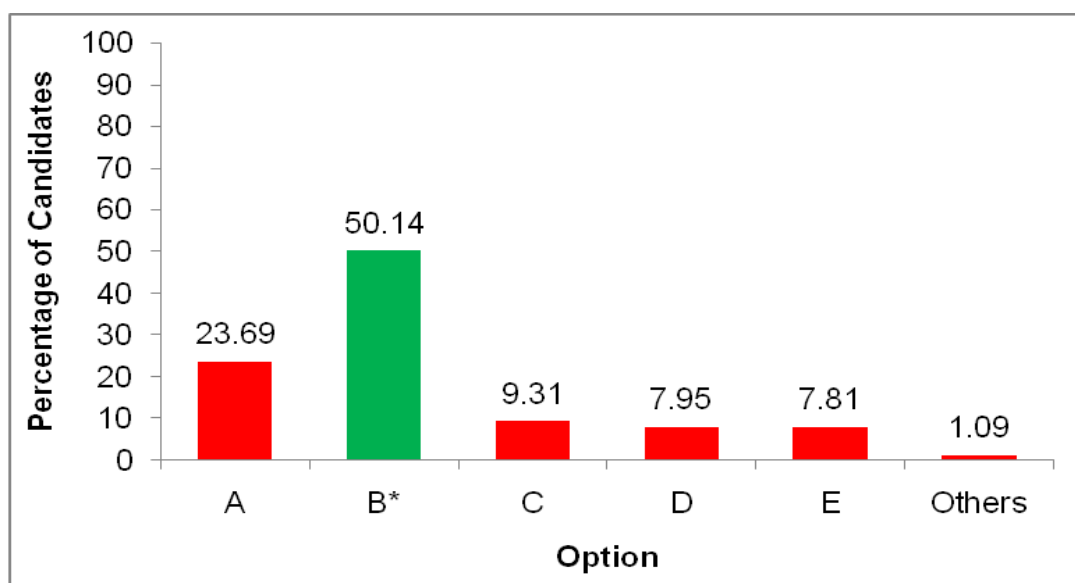


Chart No. 8: *Percentage of candidates for each option.*

The analysis of data shows that 468,008 (50.14%) candidates chose a correct answer B "-2". Therefore, the candidates had average performance in this question.

The candidates who responded to the question correctly were able to open the brackets and perform the operations as follows:
 $7 - (-3) + (2 - 14) = 7 + 3 - 12 = 10 - 12 = -2.$

Conversely, the data analysis shows that a total of 455,139 (48.77%) candidates chose the distractors A, C, D or E; 2,512 (0.27%) candidates chose more than one option and 7,655 (0.82%) candidates omitted this question. Most of these candidates were unable to apply the BODMAS rule. For example, the candidates who opted for the distractor A were unable to operate $7 - (-3)$ correctly as they wrote $7 - (-3) + (2 - 14) = -10 - 12 = -22$.

Question 8: $16^2 - 13^2 =$

A 87 B 67 C 77 D 97 E 187.

The question tested the candidates' competence in finding the square of numbers. The candidates had good performance in this question since 619,688 (66.40%) candidates answered the question correctly. Chart No. 9 shows the candidates' percentage for each alternative.

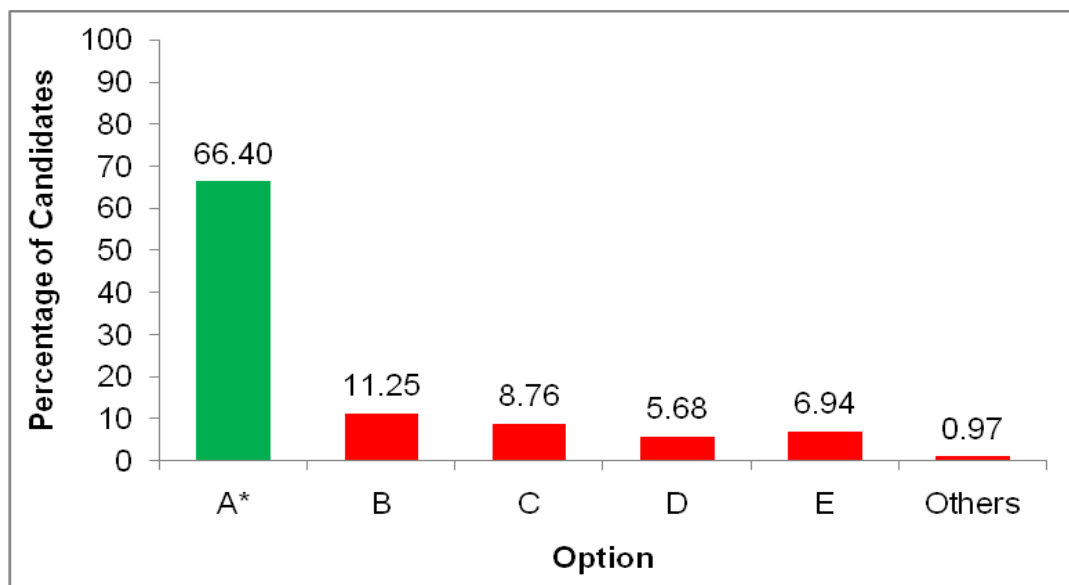


Chart No. 9: *Percentage of candidates for each option.*

Competent candidates were able to calculate the square of 16 and 13 correctly to get 256 and 169 respectively. Then, they subtracted 169 from 256 and got 87 and hence chose A “87” as a correct answer.

On the other hand, 304,568 (32.63%) candidates chose the incorrect answers B, C, D or E; 2,800 (0.30%) candidates did not adhere to the instructions and 6,258 (0.67%) candidates did not attempt this question.

The majority of candidates did not adhere correctly to the techniques of borrowing when performing subtraction. For example, there were candidates who wrote either $256 - 169 = 67$, $256 - 169 = 77$ or $256 - 169 = 187$, the solution which attracted them to choose either B “67”, C “77” or E “187”.

Question 9: $1\frac{1}{15} \div 2\frac{2}{3} =$

A $2\frac{2}{5}$

B $2\frac{11}{15}$

C $\frac{2}{5}$

D $\frac{3}{5}$

E $2\frac{2}{45}$.

The question tested ability of the candidates to perform division on mixed fractions. The data analysis shows that 626,006 (67.39%) candidates chose the correct answer C “ $\frac{2}{5}$ ”. Therefore, the candidates' performance in this question was good. Chart No. 10 shows the candidates' percentage for each alternative and others.

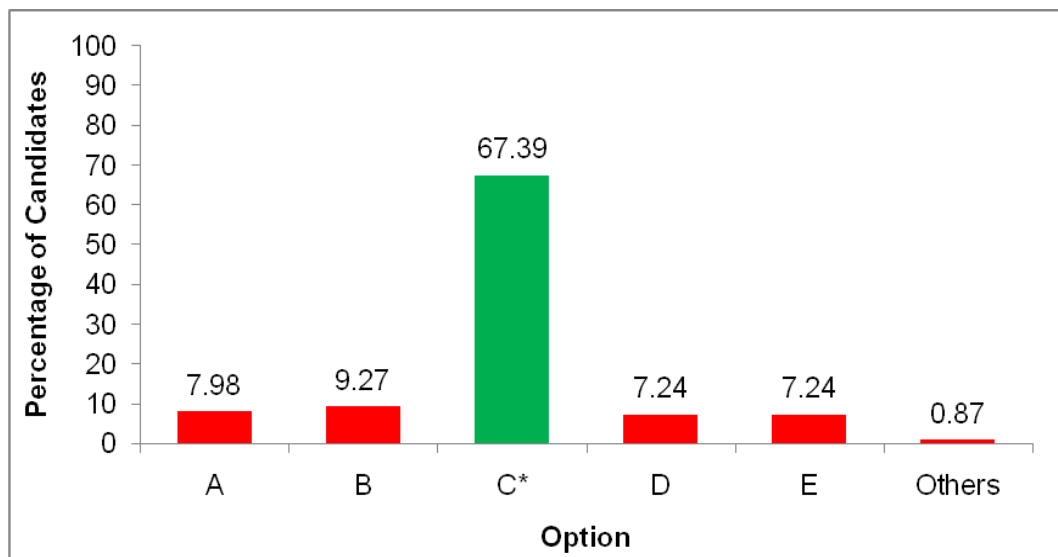


Chart No. 10: *Percentage of candidates for each option.*

The candidates who answered this question correctly were able to express $1\frac{1}{15}$ and $2\frac{2}{3}$ as improper fractions $\frac{16}{15}$ and $\frac{8}{3}$, respectively. Then, they

adhered to the correct procedures as follows: $1\frac{1}{15} \div 2\frac{2}{3} = \frac{16}{15} \div \frac{8}{3} = \frac{16}{15} \times \frac{3}{8} = \frac{2}{5}$.

Conversely, 296,211 (31.74%) candidates chose the distractors A, B, D or E. Many candidates changed the question by writing $2\frac{2}{3} \div 1\frac{1}{15}$ instead of

$1\frac{1}{15} \div 2\frac{2}{3}$. These candidates divided the whole numbers ($2 \div 1$) and fractions $\left(\frac{2}{3} \div \frac{1}{15}\right)$ separately, and finally chose the distractor E $2\frac{2}{45}$. Also,

some candidates chose the distractor B " $2\frac{11}{15}$ " after dividing the whole

numbers ($2 \div 1$) and adding the fractions $\left(\frac{2}{3} + \frac{1}{15}\right)$. A total of 2,377 (0.25%)

candidates ignored the given instructions and 5,720 (0.61%) candidates did not attempt this question.

Question 10: $2,040 \div 12 =$

A 1700

B 107

C 17

D 170

E 200.

The question tested the candidates' competence in performing division on whole numbers. The following chart shows percentage of candidates in each option.

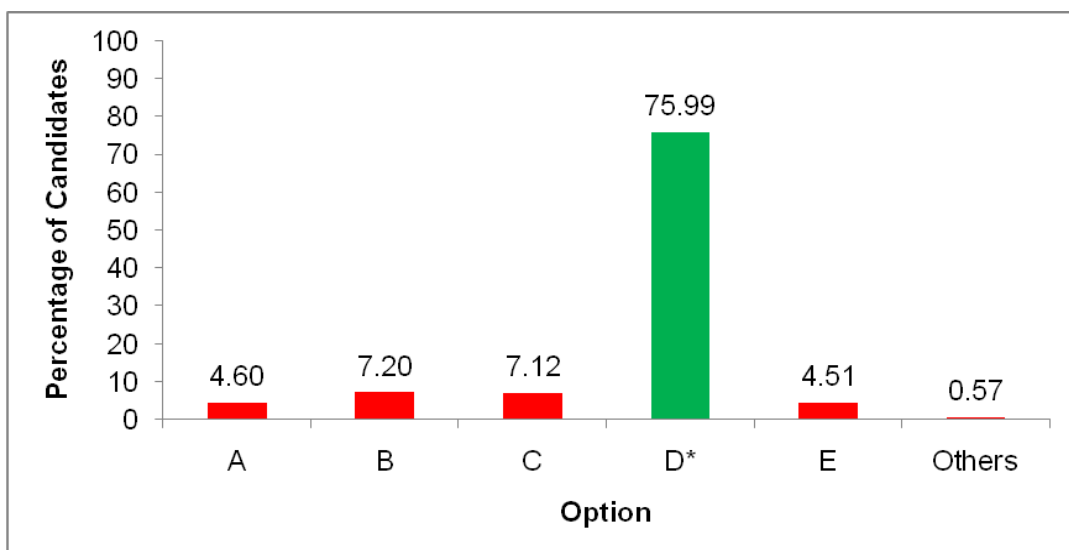


Chart No. 11: *Percentage of candidates for each option.*

The data analysis shows that 709,203 (75.99%) candidates attempted the question correctly. Majority of them applied long division method to divide 2,040 by 12 to get 170. Thus, they chose the correct answer D “170”.

The data analysis further shows that 224,111 (23.01%) candidates chose the incorrect answers A, B, C or E while 2,258 (0.28%) candidates did not adhere to the given instructions and 3,056 (0.33%) candidates avoided this question. Many candidates incorrectly put 0 in a wrong position and they chose the distractors A or B. Also, some candidates ignored the last digit (0) of 2,040 and hence chose the distractor C “17”.

Question 11: $7 \times 16.8 =$

- | | | |
|---------|---------|----------|
| A 118.6 | B 112.6 | |
| C 115.6 | D 117.6 | E 127.6. |

The question tested the candidates' competence in performing multiplication on decimals. The performance of the candidates in this question was good because 726,810 (77.87%) candidates chose the correct answer D “117.6”. Chart No. 12 shows percentage of candidates for each option.

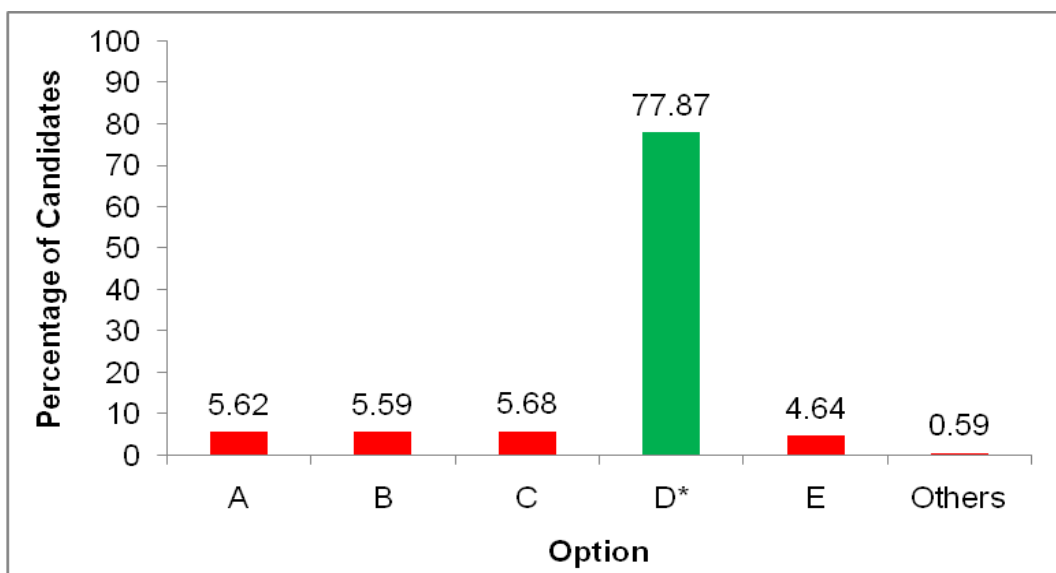


Chart No. 12: *Percentage of candidates for each option.*

Competent candidates were able to multiply 7 by 168 correctly to get 1176. Then, they counted one decimal place and hence they got 117.6. This answer enabled them to choose the correct option D “117.6”.

Though the performance was good, a total of 206,504 (22.13%) chose any of the distractors A, B, C, E or Others. This indicates that the candidates were not careful in carrying when multiplying. For example, majority of the candidates carried 3 instead of 5 when dealing with tens of decimal part and they wrote $7 \times 16.8 = 115.6$, and ended up choosing the distractor C “115.6”. Also, some candidates ignored the technique of carrying as they wrote $7 \times 16.8 = 112.6$. As a result, they chose the distractor B “112.6”.

Question 12: $24.76 - (12.46 + 8.12) =$

- | | | |
|---------|---------|---------|
| A 14.18 | B 4.18 | C 14.28 |
| D 4.28 | E 3.18. | |

The question tested the candidates' ability to apply the BODMAS rule in operation of decimals. The analysis of data shows that 624,957 (66.96%) candidates chose the correct answer B “4.18”. Therefore, the performance of candidates in this question was good. Chart No. 13 shows percentage of candidates for each alternative.

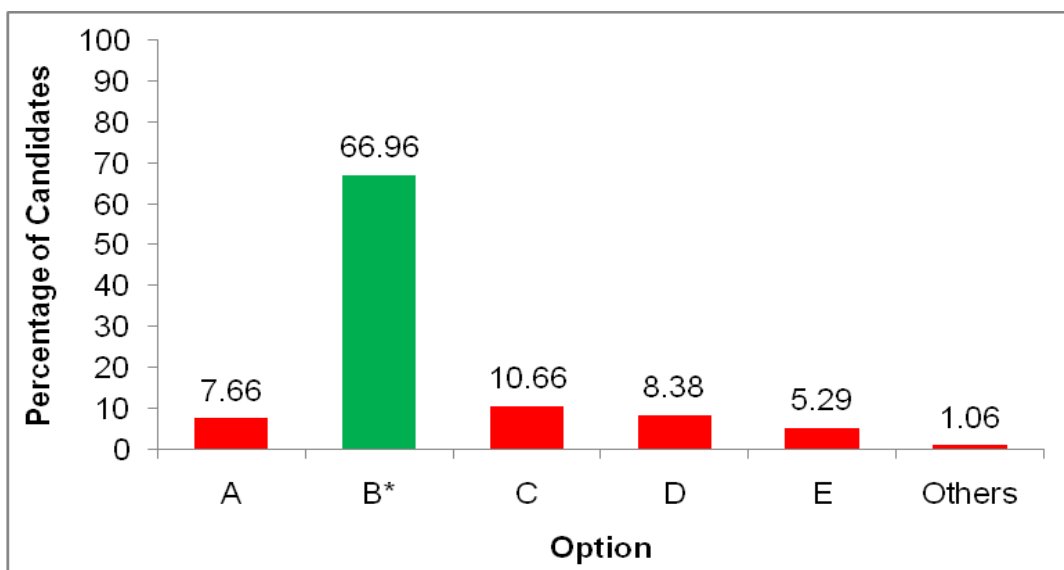


Chart No. 13: *Percentage of candidates for each option.*

The candidates with adequate knowledge opened the brackets by adding 12.46 and 8.12 to get 20.58. Then, they were able to subtract 20.58 from 24.76 to obtain a correct option B "4.18".

On the contrary, a total of 298,491 (31.98%) candidates opted for the distractors A, C, D or E. Most of them had a good start as they opened the brackets by adding 12.46 and 8.12 and got 20.58. But, the majority of candidates had insufficient knowledge and skills in applying the borrowing techniques. For example, some candidates did not reduce tenths by 1 after borrowing. This mistake led them to the choice of a wrong alternative D "4.28".

Question 13: Find 12% of 5,000.

- A 600 B 60 C 6000
D 6 E 4,400.

The question tested the ability of the candidates on percentages. The analysis of data shows that 530,117 (56.80%) candidates chose the correct answer. Therefore, the performance of candidates in this question was average. The percentage of the candidates for each option is shown in chart 14.

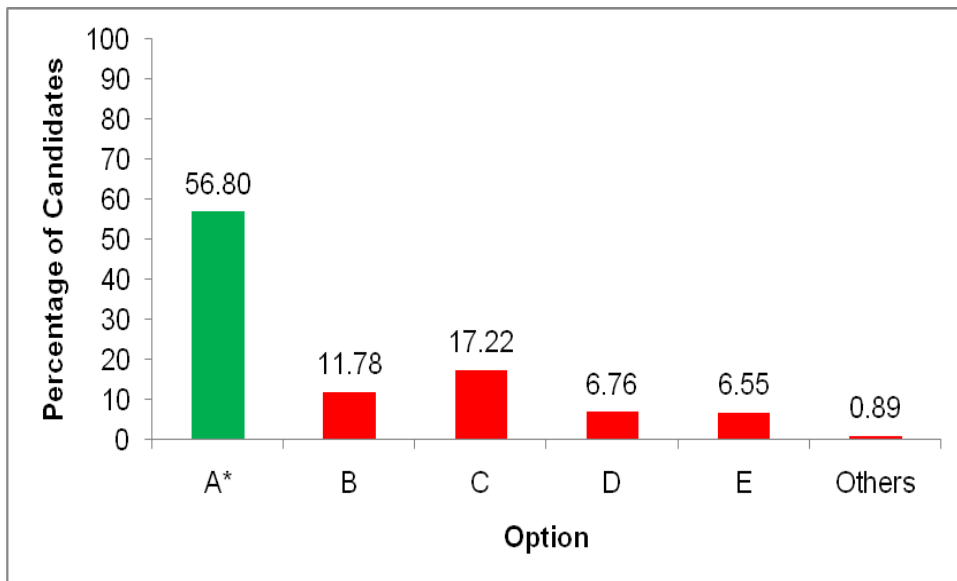


Chart No. 14: *Percentage of candidates for each option.*

The candidates with sufficient knowledge and skills on percentages were able to express 12% into fraction, $\left(\frac{12}{100}\right)$ and calculate the product of $\frac{12}{100}$ and 5000. Therefore, the candidates chose the correct answer A “600”. However, 403,197 (43.20%) candidates were not able to get the correct answer. Most of them were not careful in copying the number 5000, as some of them calculated $\frac{12}{100} \times 500$, $\frac{12}{100} \times 50000$ or $\frac{12}{100} \times 50$. This mistake led them to choose the distractors B, C or D.

Question 14: If $M=3$, $N=4$, calculate the value of $M^2 - N^2$ $M - N$.

A -8 B -7 C 12 D 8 E 7.

The question tested the candidates’ ability to perform substitution, operation on squares and applying BODMAS rule. The percentage of candidates for each option is shown in Chart No. 15.

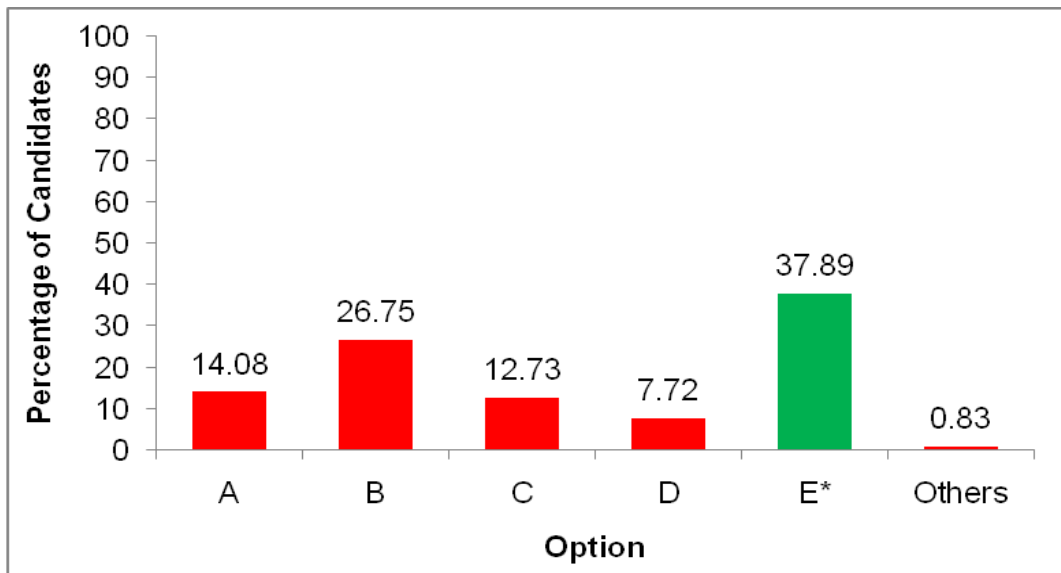


Chart No. 15: *Percentage of candidates for each option.*

As shown in Chart No. 15, a total of 579,639 (62.11%) candidates chose the wrong answers A, B, C, D and Others. Therefore, the candidates' performance in this question was weak. These candidates showed various weaknesses in attempting the question. For example, the majority of them could not realize that the product of two negative numbers is always positive. Those candidates wrote $-7 \times -1 = -7$ instead of $-7 \times -1 = 7$, hence they chose the distractor B. Also, some candidates wrongly perceived the expression -7×-1 as $-7 - 1$ instead of -7×-1 . Therefore, they chose the distractor A " -8 ". Moreover, some candidates were not able to calculate $-7 - 1$ correctly as they wrote $-7 - 1 = 8$. Thus, they chose the distractor D.

On the other hand, 353,675 (37.89%) candidates chose the correct option E 7. The candidates replaced M and N by 3 and 4, respectively, in the expression $M^2 - N^2 \div M - N$ to get $3^2 - 4^2 \div 3 - 4$. Then, they calculated square of 3 and 4 correctly to get 9 and 16. Therefore, their working was as follows: $3^2 - 4^2 \div 3 - 4 = 9 - 16 \div 3 - 4 = -7 \div -1 = 7$.

Question 15: How many prime numbers are there between 10 and 20?

- | | | |
|-----|------|-----|
| A 4 | B 5 | C 9 |
| D 6 | E 11 | |

The question tested the candidates' ability to identify prime numbers. The analysis of data shows that 646,529 (69.27%) candidates attempted the question correctly. Hence, the candidates' performance was good. The percentage of candidates for each option is shown in the following chart.

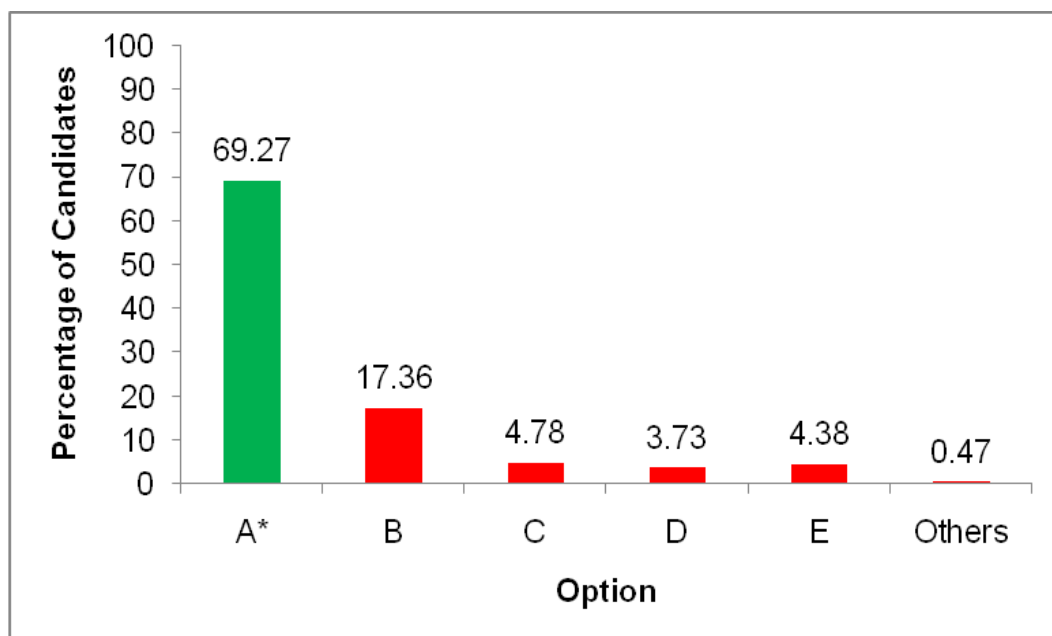


Chart No. 16: *Percentage of candidates for each option.*

The candidates who answered this question correctly listed the prime numbers between 10 and 20 as 11, 13, 17 and 19, thus they chose a correct option A “4”.

Though the performance was good, a total of 284,331 (30.47%) candidates chose the wrong options and 2,454 (0.26%) candidates did not attempt this question. Most of the candidates confused the prime numbers with odd, even or whole numbers. For example, some candidates chose the distractor B “5” after listing the odd numbers 11, 13, 15, 17 and 19. Other candidates listed the whole numbers 11, 12, 13, 14, 15, 16, 17, 18 and 19 or 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 and 20 ending up with incorrect alternative C “9” or E “11”, respectively. Also, some candidates listed the numbers 10, 12, 14, 16, 18 and 20, and ended up choosing the distractor D. Apart from failure to identify that 10 and 20 were not in the specified range, the candidates listed the even numbers instead of prime numbers. The candidates were supposed to know that a prime number is a whole number which is divisible by 1 and itself only.

Question 16: Find the Lowest Common Multiple (LCM) of 6, 8 and 12.

- A 1 B 2 C 72
D 24 E 48

This question tested the candidates' ability to find the Lowest Common Multiple (LCM) of three numbers. The number and percentage of candidates with their options are shown in Table 1.

Table 1: Number and Percentage of Candidates for Each Option

Option	A	B	C	D*	E	Others
Number of Candidates	31,341	135,319	49,296	667,776	44,878	4,704
Percentage of Candidates	3.36	14.50	5.28	71.55	4.81	0.50

The analysis of data shows that the candidates' performance was good. A total of 667,776 (71.55%) candidates were able to find the LCM of the given three numbers and they managed to choose the correct answer D "24". These candidates showed a good understanding on how to find the multiples of each number and they selected the least common multiple which is divisible by each of the given numbers.

On the other hand, 260,834 candidates equivalent to 27.95 percent lacked the skills of finding the Lowest Common Multiple of numbers and hence chose the incorrect answers A, B, C and E. For instance, 135,319 (14.50%) candidates who chose B calculated the Greatest Common Factor (GCF), that is 2, contrary to the requirements of the question. Such candidates were supposed to understand the difference between the LCM and the GCF of numbers.

Question 17: Change $33\frac{2}{3}$ into improper fraction.

- A $\frac{99}{3}$ B $\frac{100}{3}$ C $\frac{101}{3}$
D $\frac{102}{3}$ E $\frac{104}{3}$

This question tested the candidates' ability to change the mixed fraction $33\frac{2}{3}$ into an improper fraction. The number and percentage of candidates as well as their options are shown in Table 2.

Table 2: Number and Percentage of Candidates for Each Option

Option	A	B	C*	D	E	Others
Number of Candidates	78,730	83,021	682,191	48,191	35,629	5,552
Percentage of Candidates	8.44	8.90	73.09	5.16	3.82	0.59

The performance of candidates in this question was good as 73.09 percent of the candidates were able to change the given fraction into $\frac{101}{3}$ and chose the correct option C.

Despite the good performance, 245,571 (26.32%) candidates were unable to follow the correct steps of changing the given fraction into improper fraction and therefore they chose either A " $\frac{99}{3}$ ", B " $\frac{100}{3}$ ", D " $\frac{102}{3}$ " or E " $\frac{104}{3}$ " which are incorrect answers. For example, 78,730 (8.44%)

candidates who chose the option A " $\frac{99}{3}$ " found the numerator of the fraction $33\frac{2}{3}$ by multiplying 3 by 33 but did not add 2 to 99 to get 101.

Furthermore, 3,322 (0.36%) candidates did not answer this question and 2,230 (0.24%) candidates wrote more than one answer.

Question 18: If $x=3$ and $y=5$, find the value of $x-y^2$.

- A - 2 B 4 C - 4
D -16 E 16.

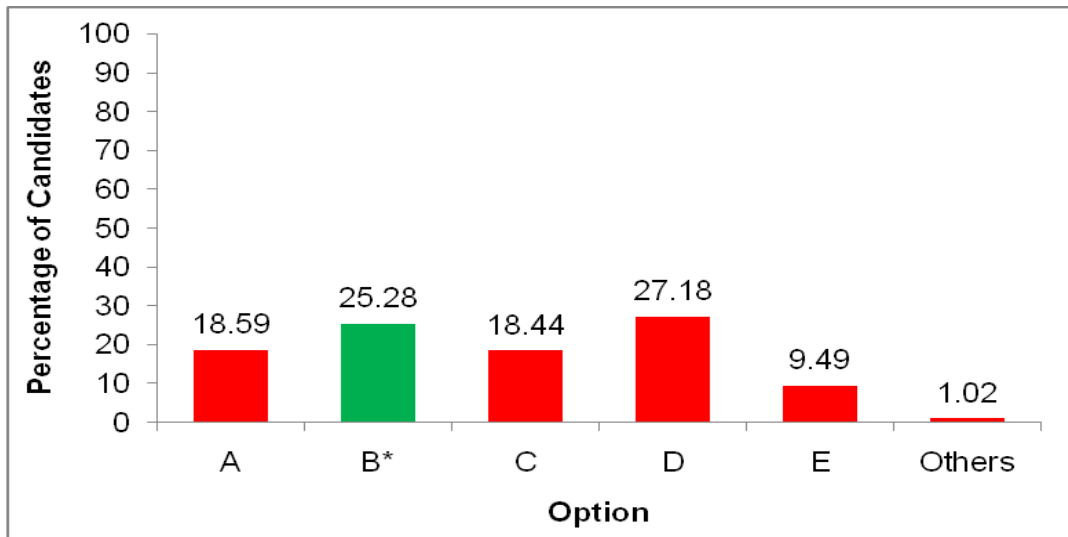
This question tested the candidates' ability to find the value of the expression $x-y^2$ given that $x=3$ and $y=5$. The number and percentage of candidates for each option are shown in Table 3.

Table 3: Number and Percentage of Candidates for Each Option

Option	A	B*	C	D	E	Others
Number of Candidates	173,458	235,967	172,092	253,683	88,581	9,533
Percentage of Candidates	18.59	25.28	18.44	27.18	9.49	1.02

The analysis of data shows that many candidates (73.70%) failed to substitute $x=3$ and $y=5$ in the expression $x-y^2$ to get the correct answer 4. These candidates ended up choosing either A “-2”, C “-4”, D “-16” or E “16”. For instance, 173,458 (18.59%) candidates who chose the distractor A “-2” evaluated the value of the expression $x-y$ instead of $x-y^2$ and 172,092 (18.44%) candidates who chose the distractor C “-4” failed to realize that when two negative numbers are multiplied, the product is a positive number.

Despite the poor performance of the candidates, there were 235,967 (25.28%) candidates who showed competence in finding the value of the given expression. Such candidates chose the correct answer which is B “4”. Furthermore, 6,774 (0.73%) candidates did not answer the question while 2,759 (0.30%) candidates wrote more than one answer. Chart No. 17 shows the percentage of candidates for each option.

**Chart No.17: Percentage of candidates for each option.**

Question 19: The square of $\sqrt{7 \times 7}$ is

- A 7 B 14 C 28
D 49 E 2401.

This question tested the candidates' ability to find the square roots and squares of whole numbers. The number and percentage of candidates with their options are shown in Table 4.

Table 4: Number and Percentage of Candidates for Each Option

Option	A	B	C	D*	E	Others
Number of Candidates	339,901	78,264	32,093	424,326	53,199	5,531
Percentage of Candidates	36.42	8.39	3.44	45.46	5.70	0.59

The analysis of data shows that the candidates' performance in this question was average. A total of 424,326 candidates, equivalent to 45.46 percent, were able to find the value of $\sqrt{7 \times 7}$ as they chose the correct answer D "49". The correct answer was obtained by calculating $\sqrt{7 \times 7}$ as 7 and then multiplying 7 by itself as follows: $7 \times 7 = 49$.

Further, analysis shows that 503,457 candidates, equivalent to 53.95 percent, chose either the distractors A "7", B "14", C "28" or E "2401". These candidates had insufficient knowledge on squares and square roots of whole numbers. For example, 339,901 (36.42%) candidates who chose the distractor A calculated the value of $\sqrt{(7 \times 7)}$ alone to get 7, but did not multiply 7 by 7 to get 49. This shows that those candidates did not know the difference between squares and square roots.

Question 20: Change the decimal number 0.05 into simple fraction.

- A $\frac{1}{200}$ B $\frac{1}{2}$ C $\frac{5}{10}$
D $\frac{5}{100}$ E $\frac{1}{20}$.

This question tested the candidates' ability to change decimals into simple fraction. The number and percentage of the candidates with their options are shown in Table 5.

Table 5: Number and Percentage of Candidates for Each Option

Option	A	B	C	D	E*	Others
Number of Candidates	59,944	74,910	119,904	186,381	486,193	5,982
Percentage of Candidates	6.42	8.03	12.85	19.97	52.09	0.64

The candidates' performance in this question was average as 486,193 candidates, equivalent to 52.09 percent, were able to follow the procedures of changing the decimal number 0.05 into simple fraction as follows:

$$0.05 = \frac{5}{100} = \frac{1}{20}.$$

On the other hand, 441,139 candidates, equivalent to 47.27 percent, chose the incorrect options A, B, C or D. Those candidates lacked enough knowledge of changing decimal number into simple fraction. For instance, 186,381, candidates equivalent to 19.97 percent, who chose the option D were able to write 0.05 as $\frac{5}{100}$ but failed to simplify it to $\frac{1}{20}$. Also, 2,998 (0.32%) candidates did not answer this question while 2,984 (0.32%) chose more than one option.

Question 21: Write the number 269 as a Roman number.

- A CCXLIX B CCLXXV
C CCLXXI D CCLXVI E CCLXIX.

This question tested the candidates' ability to write the number 269 as a Roman numbers. The number and percentage of candidates as well as their options are shown in Table 6.

Table 6: Number and Percentage of Candidates for Each Option

Option	A	B	C	D	E*	Others
Number of Candidates	96,548	35,839	63,831	48,535	681,153	7,408
Percentage of Candidates	10.34	3.84	6.84	5.20	72.98	0.79

The analysis of data shows that the candidates' performance in this question was good as 72.98 percent of the candidates were able to choose the correct answer which is E "CCLXIX". These candidates were able to recall the letters which are used to write the Roman numbers and hence wrote the number 269 into Roman number as CCLXIX. Further analysis shows that 244,753 (26.22%) candidates chose either A "CCXLIX", B "CCLXXV", C "CCLXXI" or D "CCLXVI" which are incorrect answers. These candidates lacked the knowledge and skills about conversion of Arabic numbers into Roman numbers. For instance, 96,548 candidates, equivalent to 10.34 percent, who chose the option A "CCXLIX" lacked the knowledge of writing 60 in Roman, as they wrote XL (40) instead of LX (60). Moreover, 3,794 (0.41%) candidates did not answer this question whereas 3,614 (0.39%) candidates wrote more than one answer.

Question 22: Find the missing number in the following sequence of numbers: _____, 200, 205, 210.

A 105

B 165

C 195

D 185

E 199

This question tested the candidates' ability to identify the missing number in a sequence of numbers. The number and percentage of candidates as well as their options are shown in Table 7.

Table 7: Number and Percentage of Candidates for Each Option

Option	A	B	C*	D	E	Others
Number of Candidates	137,792	37,810	666,250	24,051	62,085	5,326
Percentage of Candidates	14.76	4.05	71.39	2.58	6.65	0.57

A total of 666,250 (71.39%) candidates were able to identify that 195 was the missing number in the given sequence. Therefore, they chose the correct answer C.

However, 261,738 (28.04%) candidates chose the incorrect answers A "105", B "165", D "185" or E "199". The candidates failed to realize that the numbers in the sequence _____, 200, 205, 210 differ by 5. Thus, the first number could be obtained by subtracting 5 from 200 to get 195. Chart No. 18 shows the percentage of the candidates and their options in each

option. In addition, 2,623 (0.28%) candidates did not answer this question and 2,703 (0.29%) candidates chose more than one option.

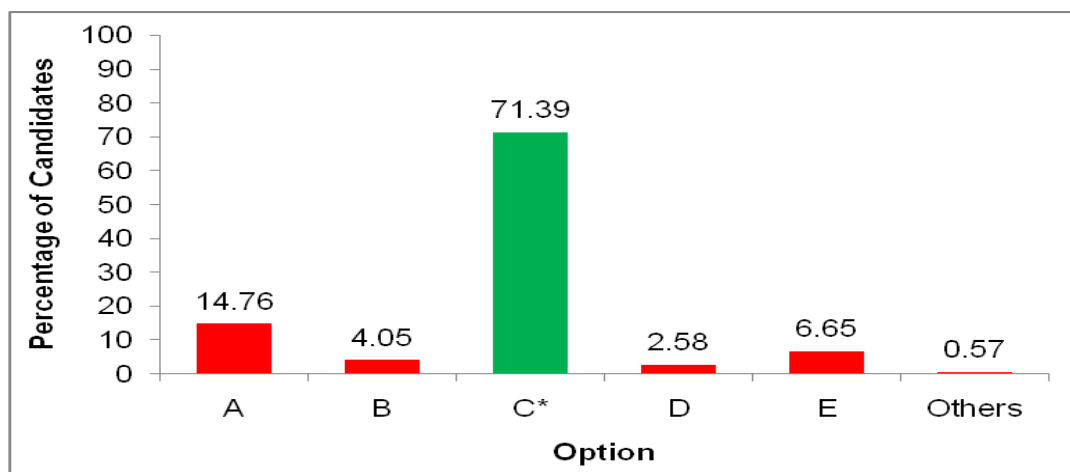
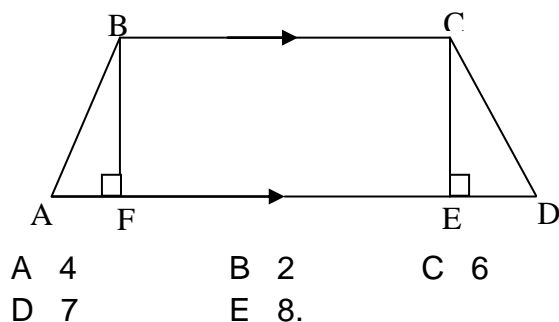


Chart No. 18: *Percentage of candidates for each option.*

Question 23: If the triangles ABF and DCE are equal right angled triangles, how many lines are parallel in the figure ABCDEF?



This question tested the candidates' ability to identify the parallel lines in the figure ABCDEF. The number and percentage of the candidates including their responses are shown in Table 8.

Table 8: Number and Percentage of Candidates for Each Option

Option	A*	B	C	D	E	Others
Number of Candidates	173,727	451,477	188,573	33,208	77,969	8,360
Percentage of Candidates	18.61	48.37	20.20	3.56	8.35	0.90

The analysis of data shows that the candidates' performance in this question was weak. A total of 751,227 (80.48%) candidates chose the distractor B, C, D or E. These candidates failed to realize that the parallel lines are the lines which are always equidistant and never touch each other. For instance, the candidates who chose the distractor B "2" regarded the given figure as having two parallel lines namely \overline{BC} and \overline{EF} but failed to identify that line \overline{CE} and \overline{BF} are also parallel.

However, 173,727 (18.61%) candidates were able to identify that figure ABCDEF has four parallel lines and hence they chose the correct answer D "4". Chart No 19 shows the percentage of the candidates and their responses for each option.

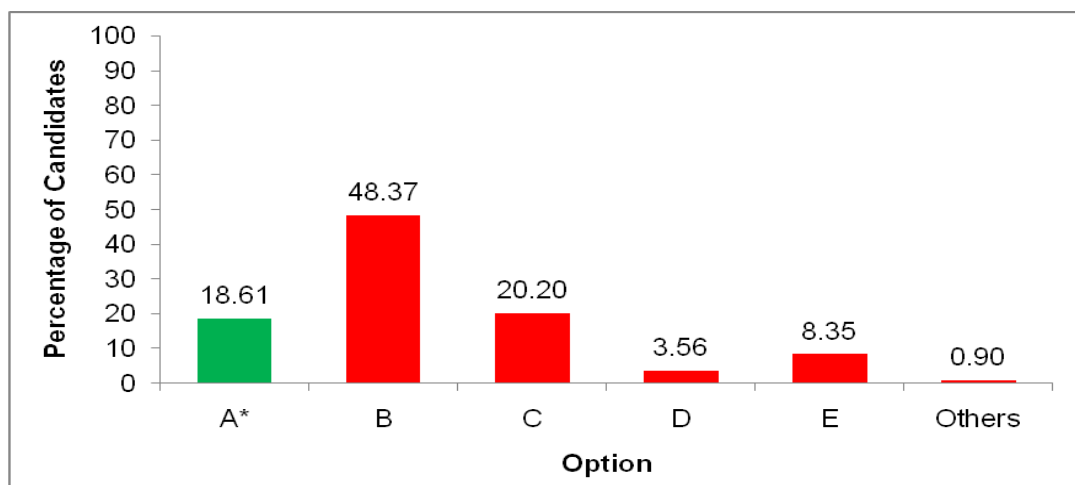
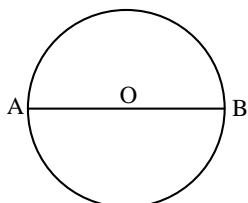


Chart No. 19: *Percentage of candidates for each option.*

Question 24: The following figure is a circle whose diameter is 56 cm. Find its circumference (Use $\pi = \frac{22}{7}$).



- A 242 cm B 166 cm C 176 cm
 D 342 cm E 352 cm.

This question tested the candidates' ability to find the circumference of a circle which has the diameter of 56 cm by using $\pi = \frac{22}{7}$. The number and percentage of candidates and their options are shown in Table. 9.

Table 9: Number and Percentage of Candidates for Each Option

Option	A	B	C*	D	E	Others
Number of Candidates	67,109	601,604	601,604	58,570	59,054	7,916
Percentage of Candidates	7.19	14.90	64.46	6.28	6.33	0.85

The data analysis shows that the candidates' performance in this question was good. A total of 601,604 candidates, equivalent to 64.46 percent, correctly substituted $\pi = \frac{22}{7}$ and the diameter (d) 56 cm in the formula for finding the circumference of a circle; $\text{circumference} = \pi d$. These candidates got the circumference of the circle as 176 cm and hence chose the correct answer C "176".

However, 323,794 (34.69%) candidates failed to find the circumference of the given circle. Thus, they chose the incorrect option A, B, D or E. For example, the candidates who chose the distractor B wrote $22 \times 8 = 166$ instead of $22 \times 8 = 176$ due to lack of skills in carrying a number from ones to tens. Chart No. 20 shows the percentage of the candidates for each option.

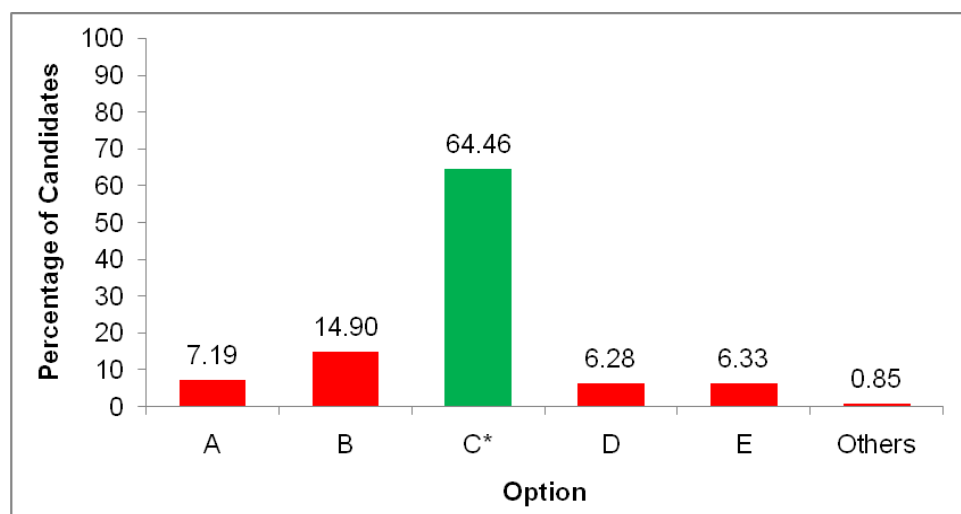
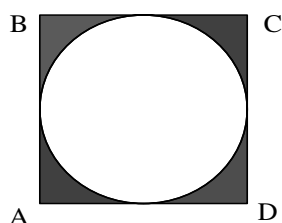


Chart No. 20: Percentage of candidates for each option.

Question 25: Figure ABCD is a square with the length of side AB 70 cm.

Find the area of the shaded region (Use $\pi = \frac{22}{7}$).



- A 110 cm^2 B 1150 cm^2 C $1,050 \text{ cm}^2$
D $3,850 \text{ cm}^2$ E $4,900 \text{ cm}^2$

This question tested the candidates' ability to find the area of the shaded region in the given figure. The number and percentage of the candidates with their responses are shown in Table 10.

Table 10: Number and Percentage of Candidates for Each Option

Option	A	B	C*	D	E	Others
Number of Candidates	143,671	141,503	385,773	136,604	113,729	12,034
Percentage of Candidates	15.39	15.16	41.33	14.64	12.19	1.29

The analysis of data shows that 385,773 (41.33%) candidates were able to calculate area of the shaded region by subtracting the area of a circle from the area of a square, i.e. $\text{area} = 70 \times 70 - \frac{22}{7} \times \frac{70}{2} \times \frac{70}{2} = 1050 \text{ cm}^2$. Therefore, they chose the correct answer C "1050 cm^2 ".

However, a total of 535,507 (57.38%) chose the incorrect option A, B, D or E. These candidates failed to identify the requirements of the question. For example, the candidates who chose the option A calculated the circumference of a circle with the diameter of 35 cm. Those who chose the option B failed to identify that they borrowed 1 from the hundreds place value of 4900 as follows: $\text{area} = 4900 - 3850 = 1150 \text{ cm}^2$. On the other hand those who chose the option D calculated the area of the circle only. The candidates who chose E calculated the area of the square only and considered it as the correct answer. Furthermore, 9452 (1.01%) candidates did not attempt this question and 2582 (0.28%) candidates chose more

than one option. Chart No. 21 shows the percentage of candidates for each option.

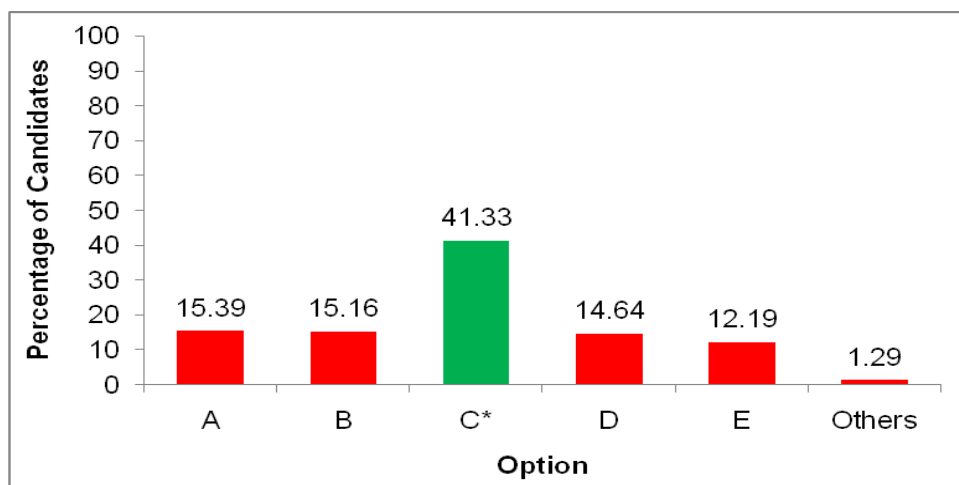
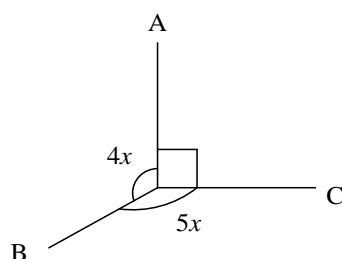


Chart No. 21: *Percentage of candidates for each option.*

Question 26: Find the value of x in the following figure:



- A 10 B 30 C 90
 D 20 E 40.

This question tested the candidates' ability to find the value of x using the angles in the given figure. The number and percentage of candidates including their responses are shown in Table 11.

Table 11: Number and Percentage of Candidates for Each Option

Option	A	B*	C	D	E	Others
Number of Candidates	332,647	214,397	120,710	217,823	41,660	6,077
Percentage of Candidates	35.64	22.97	12.93	23.34	4.46	0.65

The analysis of data shows that the candidates' performance in this question was weak. Many candidates (76.37%) chose the incorrect

answers A, B, D or E. These candidates lacked the knowledge of relating angles formed by a circle. For instance, 332,647 (35.64%) candidates who chose the distractor A thought that the sum of angles $4x$ and $5x$ is equal to 90° , thus they evaluated $4x + 5x = 90^\circ$ and got $x = 10$. Also, 217,823 (23.34%) candidates who chose the distractor D computed $4x + 5x = 180^\circ$ to get $x = 20^\circ$.

Despite the weak performance, 214,397 (22.97%) candidates were able to work out the answer for this question and choose the correct answer D. Such candidates were able to identify that the angles in the given figure add up to 360 degrees. Thus, they correctly calculated $4x + 5x + 90^\circ = 360^\circ$ to get $x = 30^\circ$. Chart No. 22 shows the percentage of the candidates for each option

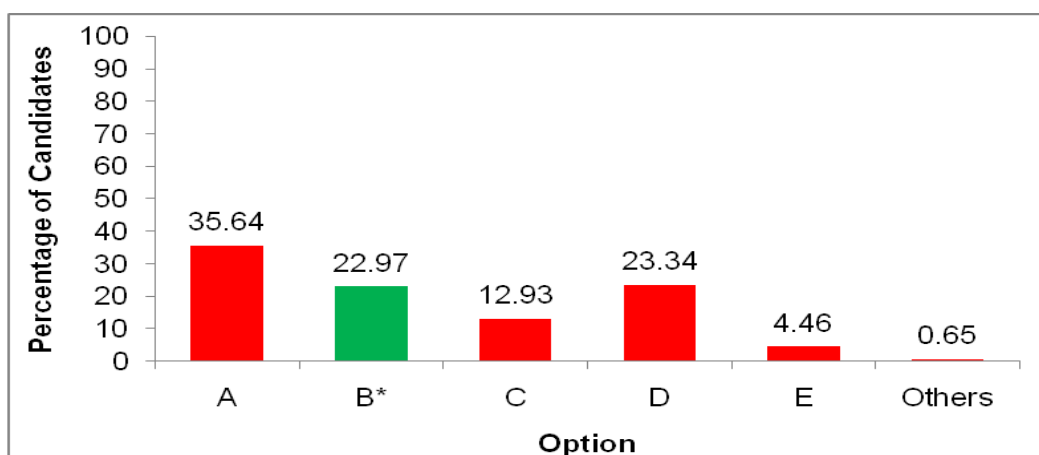
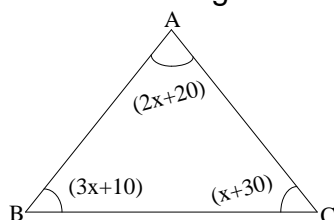


Chart No. 21: *Percentage of candidates for each option.*

Question 27: Find the size of angle B in the following figure:



- A 20° B 30° C 50°
 D 60° E 70°

This question tested the candidates ability to find the size of angle B in a triangle with the angles $2x + 20^\circ$, $3x + 10^\circ$ and $x + 10^\circ$. The number

and percentage of the candidates together with their options are shown in Table 12.

Table 12: Number and Percentage of Candidates for Each Option

Option	A	B	C	D	E*	Others
Number of Candidates	310,255	99,643	87,488	173,604	254,247	8,077
Percentage of Candidates	33.24	10.68	9.37	18.60	27.24	0.87

The analysis of data shows that 670,990 (71.89%) chose the incorrect answers A, B, C or D. This indicates that the candidates' performance in this question was weak. These candidates were unable to use the expression $3x + 10^\circ$ to find the size of the angle B. For instance, 310,255 (33.24%) candidates who chose the distractor A solved the equation $2x + 20^\circ + 3x + 10^\circ + x + 10^\circ = 180^\circ$ to get $x = 20^\circ$ and then considered it as the size of angle B. Also, 173,604 (18.60%) candidates who chose the distractor D, substituted $x = 20^\circ$ in the expression $3x + 10^\circ$ to get 70° which is the size of angle A. In addition, 5,134 (0.55%) candidates did not answer this question while 2,943 (0.32%) candidates did not abide by the given instructions.

On the other hand, a total of 254,247 (27.24%) managed to find the value of the mentioned angle and choose the correct answer E “70°”. Chart No. 23 shows the percentage of candidates for each option.

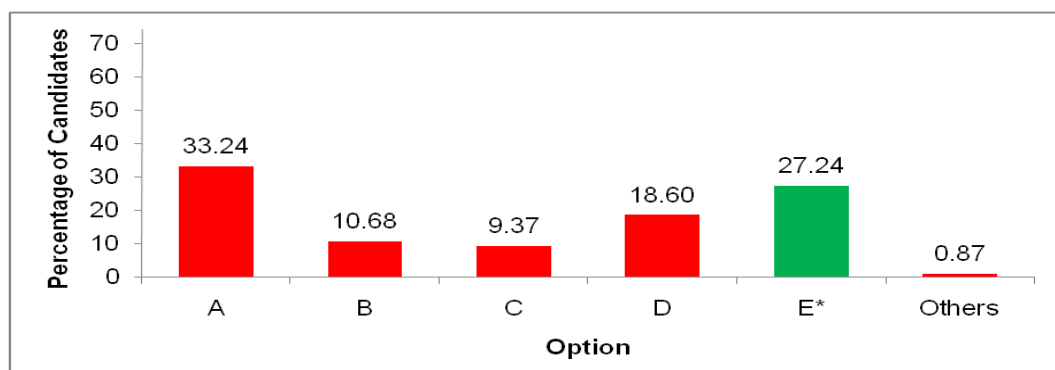
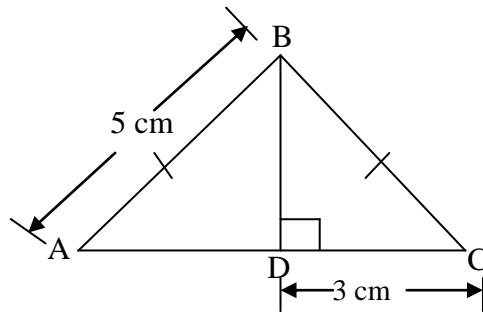


Chart No.22: *Percentage of candidates for each option.*

Question 28: If the length AD is equal to length DC, find the area of the triangle ABC.



- A 10 cm^2 B 12 cm^2 C 15 cm^2
D 20 cm^2 E 30 cm^2 .

The question tested candidates' ability to find the area of the triangle. A total of 318,450 (34.1%) attempted the question correctly. Therefore, the candidates' performance was weak. In this question the candidates were required to apply the Pythagoras theorem to find length BD, then area of of the triangle ABC. The number and percentage of the candidates and their responses are shown in Table 13.

Table 13: Number and Percentage of Candidates for Each Option

Option	A	B*	C	D	E	Others
Number of Candidates	74,261	318,450	378,889	61,732	92,300	7,682
Percentage of Candidates	7.96	34.12	40.60	6.61	9.89	0.82

The analysis of the candidates' responses shows that 607,182 (65.06%) candidates chose the option A "10 cm²", C "15 cm²", D "20 cm²" or E "30 cm²" which were not correct answers. These candidates failed to apply Pythagoras theorem to find the height of the triangle and consequently the

area of the triangle ABC using the formula $\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$. For instance, 378,889 (40.60%) candidates who chose the option C used the Pythagoras theorem to find the height BD to get 4 cm and then calculated the required area as $4 \text{ cm} \times 5 \text{ cm} = 20 \text{ cm}^2$. Also, 92,300 (9.09%) candidates who chose the distractor E multiplied the base AC by the height BD to get 30 cm^2 . In addition, 5,803 (0.62%) candidates did not answer this question while 1879 (0.20%) did not comply with the given instructions.

However, 318,450 candidates, equivalent to 34.12 percent, managed to find the area of the triangle ABC and opted for B which is the correct

answer. Such candidates correctly used the Pythagoras theorem to calculate the height BD (4 cm) and the base AD (3 cm) which were used in the formula $\frac{1}{2} \times \text{base} \times \text{height}$ and got 12 cm^2 as the required area of the triangle ABC. Chart No. 24 shows the percentage of candidates for each option.

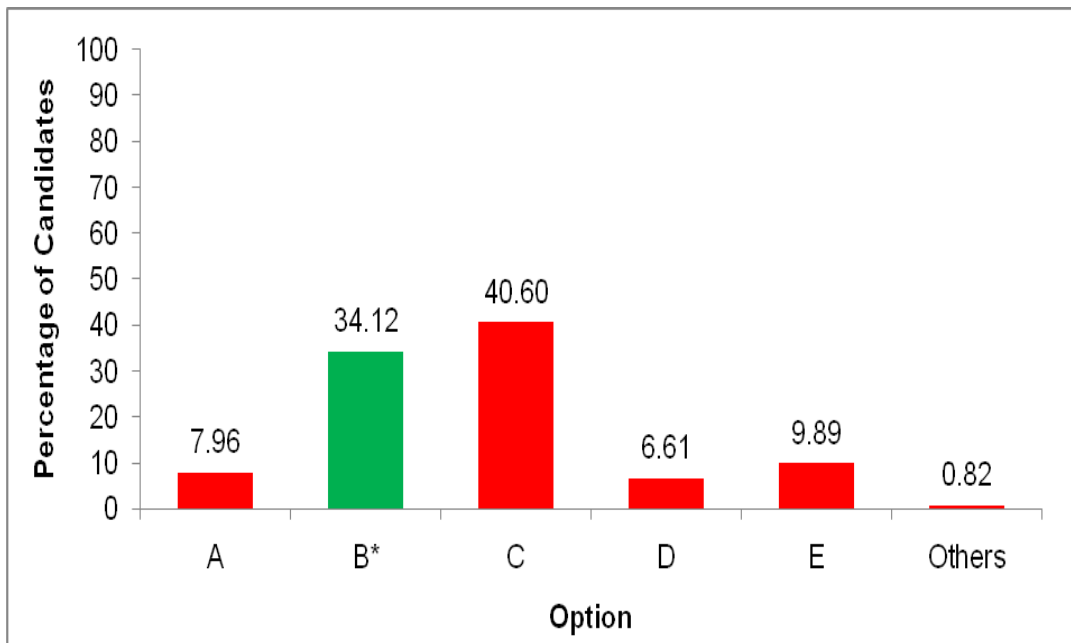
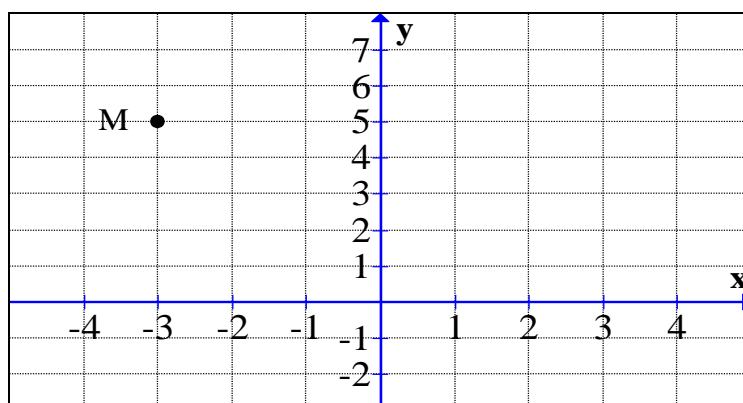


Chart No. 24: *Percentage of candidates for each option.*

Question 29: Write the coordinate M in the following graph:



- A (3, 5) B (-5, 3) C (0, 5)
 D (-3, 5) E (-3, 0).

This question tested the candidates' ability to identify the coordinates of a point. The number and percentage of the candidates with their responses are shown in Table 14.

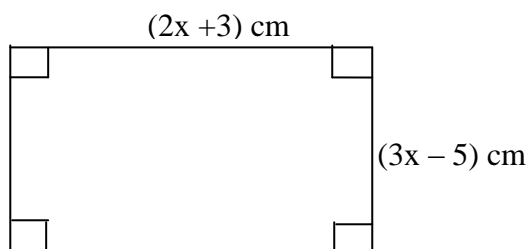
Table 14: Number and Percentage of Candidates in Each Option

Option	A	B	C	D*	E	Others
Number of Candidates	64,282	120,029	43,536	675,849	24,609	5,009
Percentage of Candidates	6.89	12.86	4.66	72.41	2.64	0.54

The analysis of data shows that the candidates' performance in this question was good as 675,849 (72.41%) were able to identify the coordinates of point M and choose D (-3, 5) which is the correct answer.

However, 252,456 (27.05%) candidates chose the distractor A, B, C or E. Such candidates lacked the knowledge of writing the coordinates of point M (x, y) where by the coordinate of x is the number of the steps from the origin to M along the x-axis and coordinate of y is the number of steps from the origin to M along the y-axis. In addition, 2,722 (0.29%) candidates did not answer this question while 2,287 (0.25%) candidates failed to comply with the given instructions.

Question 30: The perimeter of the following rectangle is 26 cm. Find its width.



- A 4 cm B 6 cm C 8 cm
D 9 cm E 3 cm.

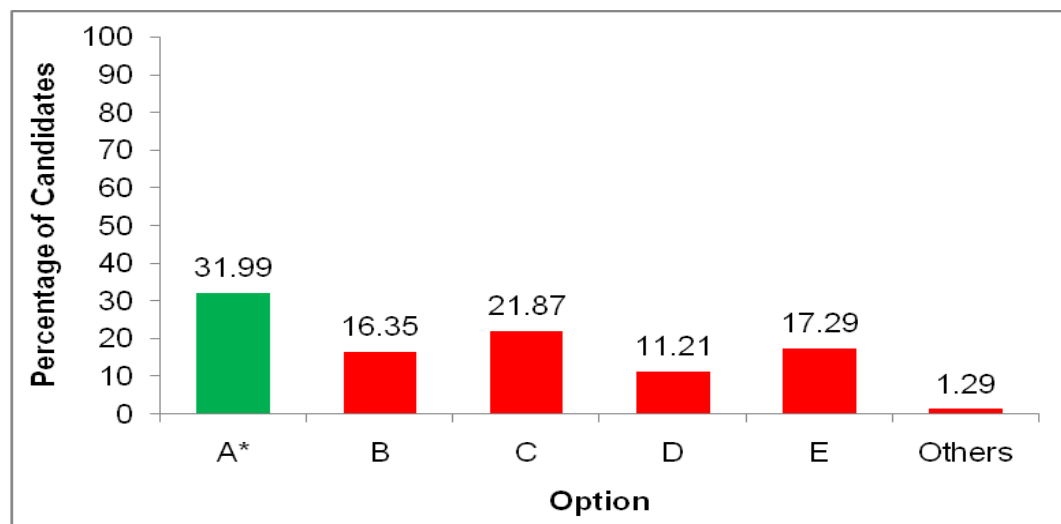
This question tested the candidates' ability to apply the formula for calculating the perimeter of a rectangle to find its width. The number and percentage of candidates together with their options are summarized in Table 15.

Table 15: Number and Percentage of Candidates for Each Option

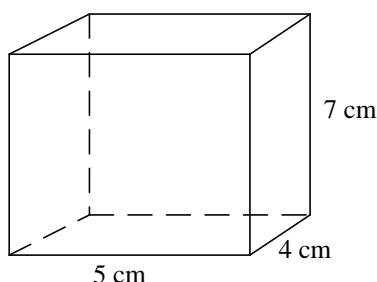
Option	A*	B	C	D	E	Others
Number of Candidates	298,582	152,592	204,127	104,642	161,339	12,032
Percentage of Candidates	31.99	16.35	21.87	11.21	17.29	1.29

The analysis of the candidates' responses shows that 622,700 (66.72%) candidates chose the incorrect options B, C, D or E. This indicates that the performance was weak. The candidates failed to use the expression $3x-5$ to find the width of the given rectangle. For instance, 161,339 (17.29%) candidates who chose the distractor E "3 cm" calculated the value of x from the equation $2(2x+3) + 2(3x-5) = 26$ to get $x=3$ cm, but they did not proceed to find the width. Also, 104,642 (11.21%) candidates who chose the distractor D substituted $x=3$ cm into the expression $2x+3$ to get 9 cm which is the length of the rectangle. In addition, 9088 (0.97%) candidates did not answer this question while 2944 (0.32%) candidates chose more than one answer.

However, 298,582 candidates, equivalent to 31.99 percent, who chose the correct answer A substituted $x=3$ cm into the expression $3x-5$ to get 4 cm which is the width of the rectangle. Chart No. 25 shows the percentage of the candidates for each option.

**Chart No. 25:** *Percentage of candidates for each option.*

Question 31: Find the surface area of the following figure:



- A 40 cm^2 B 96 cm^2 C 70 cm^2
D 83 cm^2 E 166 cm^2 .

This question tested the candidates' ability to find the surface area of a closed rectangular prism. The number and percentage of the candidates as well as their responses are summarized in Table 16.

Table 16: Number and Percentage of Candidates for Each Option

Option	A	B	C	D	E*	Others
Number of Candidates	152,265	147,401	116,335	92,155	412,955	12,203
Percentage of Candidates	16.31	15.79	12.46	9.87	44.25	1.31

The candidates' performance was average as 412,955 candidates, equivalent to 44.25 percent, chose the correct answer E. These candidates managed to calculate the surface area of the given closed rectangular prism by using the formula $\text{Area} = 2 \times (\text{length} \times \text{width} + \text{width} \times \text{height} + \text{height} \times \text{length})$ and hence got 166 cm^2 as required.

However, 508,156 (54.45%) candidates chose the incorrect answer A, B, C or D. The candidates were unable to identify the number of faces whose area was intended. For instance, the candidates who chose the distractor A " 40 cm^2 " calculated the surface area of the top and bottom surface while those who opted for the distractor B " 96 cm^2 " added the surface area of the bottom, top, left and right faces. They did not include the area of the front and back faces. Moreover, 8,603 (0.92%) candidates did not answer this question while 3,600 (0.39%) candidates chose more than one answer. Chart No. 26 shows the percentage of the candidates for each option.

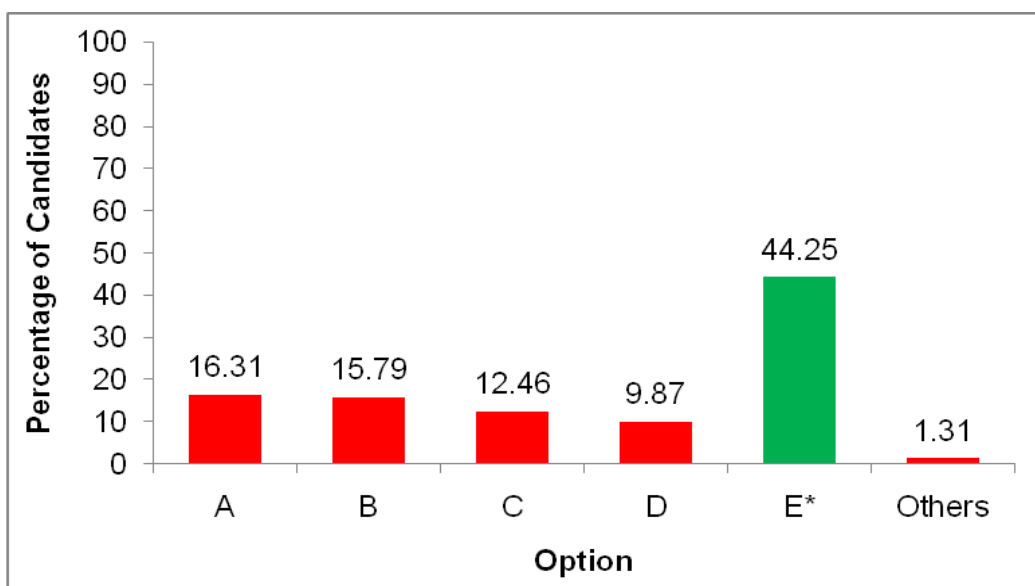


Chart No. 26: *Percentage of candidates for each option.*

Question 32: The area of a rectangular vegetable garden is 160 m^2 and its width is 8 m. If John wants to put a fence around the garden, how long shall the fence be?

- A 20 m B 28 m C 40 m
D 56 m E 80 m

This question tested the candidates' ability to apply the formula for calculating the perimeter of a rectangle to find the length of the entire fence. The number and percentage of candidates with their responses are shown in Table 17.

Table 17: Number and Percentage of Candidates for Each Option

Option	A	B	C	D*	E	Others
Number of Candidates	482,792	101,439	83,546	132,316	123,353	9,868
Percentage of Candidates	51.73	10.87	8.95	14.18	13.22	1.06

The analysis of data shows that 85.82 percent of candidates chose the incorrect answers. This shows that the candidates' performance was weak. The candidates lacked understanding on the concepts of length and perimeter of the rectangular garden. For example, more than half of the candidates (51.73%) who opted for A "20 m" divided the area of the garden by its width, and 101,439 (10.87%) candidates who chose B "28 cm" added

the length and width (20+8). Also, 6,557 (0.70%) candidates did not answer this question while 3,311 (0.35%) candidates did not follow the given instructions.

Further analysis shows that 132,316 (14.18%) candidates chose the correct answer D “56 m”. Such candidates were able to calculate the length of the entire garden using the formula for calculating the perimeter of the rectangle: $\text{perimeter} = 2 \times \text{length} + \text{width}$, whereby $\text{length} = \frac{\text{area}}{\text{width}}$. Thus,

the length of the entire garden is $20\text{ m} + 8\text{ m} \times 2 = 56\text{ m}$. Chart No. 27 shows the percentage of the candidates for each option.

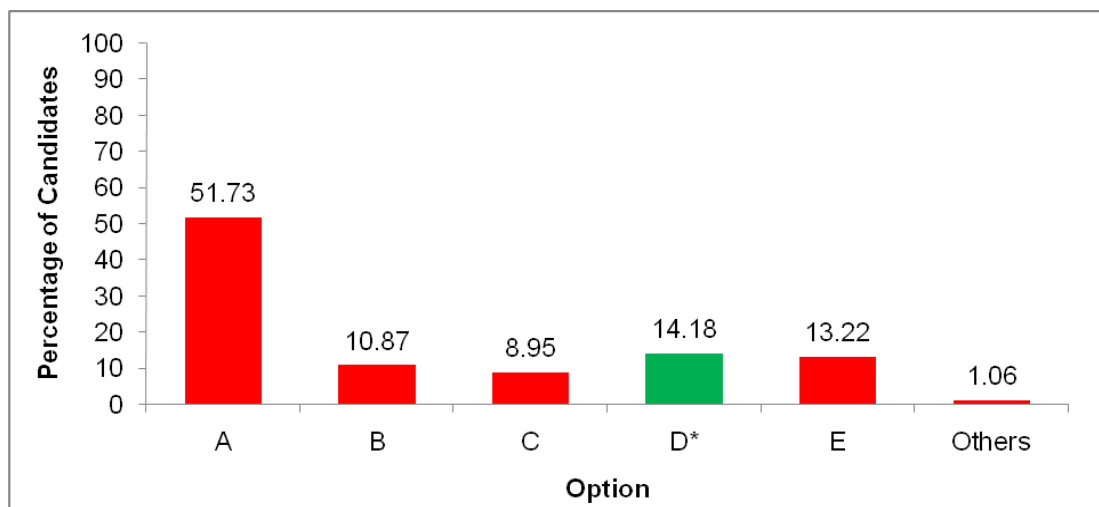


Chart No. 27: *Percentage of candidates for each option.*

Question 33: Zuberi bought the following school stationeries for his son:

Two books @ sh 7,200;

Two rulers @ sh 1,500;

Two sets of pens @ sh 7,200;

Ten exercise books @ sh 1,500.

If he gave the shopkeeper 5 notes of ten thousand shillings each, how much money was returned to him?

A 36,800/= B 3,200/= C 4,200/=

D 46,800/= E 14,200/=

This question tested the candidates' ability to prepare a bill and then calculate the remaining amount of money. The number and percentage of candidates together with their responses are shown in Table 18.

Table 18: Number and Percentage of Candidates for Each Option

Option	A	B*	C	D	E	Others
Number of Candidates	127,307	420,967	109,164	178,074	87,040	10,762
Percentage of Candidates	13.64	45.10	11.70	19.08	9.33	1.15

The analysis of the candidates' responses shows that the candidates' performance was average as 420,967 (45.10%) chose the correct answer B. These candidates were able to identify that the amount of sh 3,200/= was returned to Zuberi as a balance after purchasing school stationeries. However, more than half of the candidates (53.75%) chose the incorrect answers A, C, D or E. Such candidates failed to add and subtract money up to 100,000 shillings. For example, 109,164 (11.70%) candidates who chose the distractor C forgot that they borrowed from the thousands place value of 50,000. Also, 178,074 (19.08%) candidates who chose the distractor D calculated the amount of money spent on school stationeries which is 46,800/=. Moreover, 127,307 (13.64%) candidates who chose the distractor A "36,800 calculated the amount of money spent on school stationeries and failed to carry 1 to the thousands place value. Furthermore, 7,990 (0.86%) candidates did not answer this question and 2,772 (0.30%) failed to abide by the given instructions. Chart No. 28 shows the percentage of the candidates for each option.

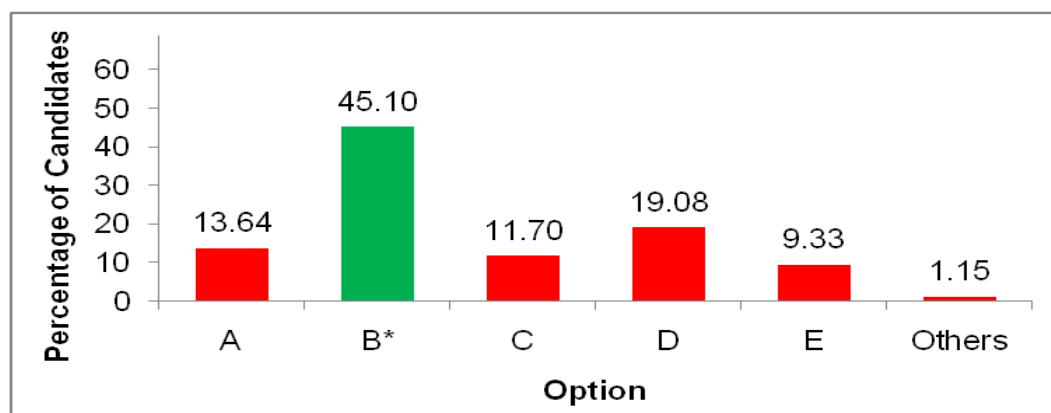


Chart No. 28: Percentage of candidates for each option.

Question 34: A farmer harvested 56 sacks of maize in his farm. If all the sacks were sold at 1,400,000 shillings, how much did he sell each sack?

- A 2,500 B 25,000 C 250,000
D 250 E 40,000

The question tested the candidates' ability to solve word problem on dividing the money. The number and percentage of the candidates and their responses are shown in Table 19.

Table 19: Number and Percentage of Candidates for Each Option

Option	A	B*	C	D	E	Others
Number of Candidates	70,104	545,535	161,476	64,273	81,765	10,161
Percentage of Candidates	7.51	58.45	17.30	6.89	8.76	1.09

A total of 545,535 (58.45%) candidates performed the question correctly. Such candidates were able to divide 1,400,000 shillings by 56 sacks to get 25,000 shillings, hence they chose the correct answer B.

However, 377,618 (40.46%) candidates chose the incorrect answers A, C, D or E. These candidates failed to solve the word problem on dividing numbers up to 10,000,000 by a divisor with two digits. In addition, 7,691 (0.82%) candidates did not answer this question while 2,470 (0.26%) did not follow the given instructions. Chart No. 29 shows the percentage of candidates for each option.

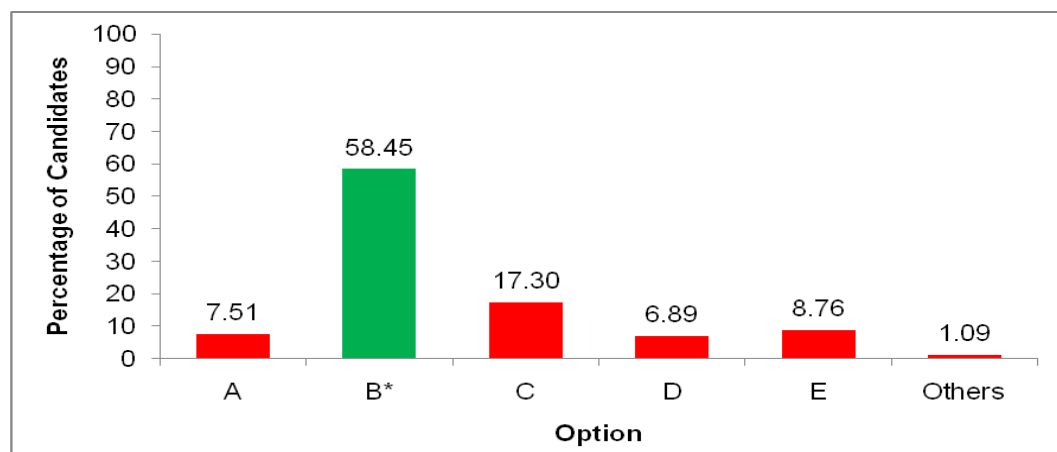


Chart No. 29: Percentage of candidates for each option.

Question 35: 45 percent of Kamota Primary School pupils like Mathematics. If the school has 400 pupils, how many of them do not like Mathematics?

- A 420 B 220 C 210
D 355 E 180

This question tested the candidates' ability to solve a word problem involving the application of the whole numbers and percentage. The number and percentage of candidates together with their options are shown in Table 20.

Table 20: Number and Percentage of Candidates for Each Option

Option	A	B*	C	D	E	Others
Number of Candidates	50,669	262,588	78,025	323,483	209,248	9,301
Percentage of Candidates	5.43	28.14	8.36	34.66	22.42	1.00

The performance in this question was weak as 661,425 (70.87%) candidates chose incorrect answer A, C, D or E. The analysis shows that 323,483 (34.66%) candidates who chose the distractor D "355" subtracted 45 from 400. Also, 209,248 (22.42%) candidates who chose the distractor E "180" calculated the number of pupils who like Mathematics instead of those who do not like Mathematics.

However, 262,588 (28.14%) candidates were able to answer the question correctly by choosing the correct answer B "220". The candidates calculated the percentage of the pupils who do not like Mathematics as $100\% - 45\% = 55\%$ and then found the required number of pupils, that is, $\frac{55}{100} \times 400 = 220$. This shows that, the candidates had sufficient knowledge and skills on Percentages.

Question 36: Five children shared 15 sweets which they were given by their teacher. The equation that shall be used in sharing the sweets is;

- A $3x = 15$ B $x = 15$ C $x = 5$
D $5x = 15$ E $15x = 5$.

The question tested candidates' ability to formulate equations from word problems. The data analysis shows that 437,404 (46.87%) candidates answered the question correctly. Therefore, the candidates' performance was average. Chart No. 30 shows percentage of the candidates for each option.

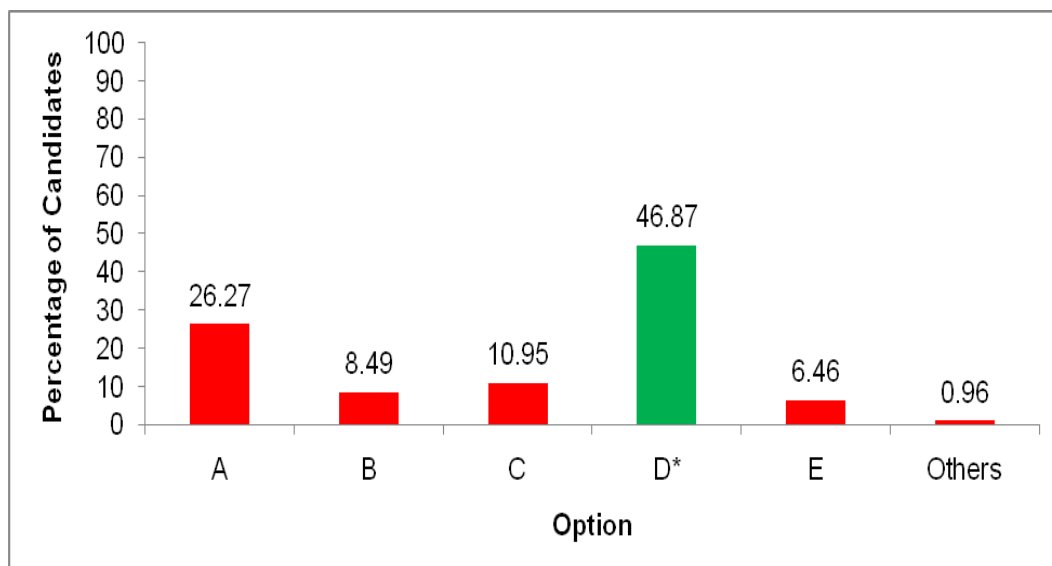


Chart No. 30: *Percentage of candidates for each option.*

The competent candidates realized that the product of the number of children (5) and the number of sweets every child should get (x) is 15. Hence, they formulated the equation $5x=15$ and chose the correct answer D.

On the contrary, the analysis of data shows that 486,925 (52.17%) candidates chose the wrong options A, B, C or E, 2,843 (0.30%) candidates ignored the given instructions and 6,142 (0.66%) candidates did not attempt this question. Most of them divided 15 by 5 to get 3. Then, they formulated an equation that does not represent the word problem $3x=15$. This answer attracted them to choose the distractor A " $3x=15$ ". Some candidates solved the equation $3x=15$ to get $x=5$, hence they chose distractor C " $x=5$ ". Also, some candidates equated x to 15 to get $x=15$ and consequently chose the distractor B.

Question 37: Kabeja had 672 cows. One day he decided to sell 178 cows.

How many cows did he remain with?

- A 594 B 484 C 494
D 506 E 504

The question tested candidates' ability to solve a word problem involving subtraction. Analysis of data shows that 694,327 (74.39%) candidates chose a correct answer C “494”. Therefore, the candidates’ performance in this question was good. Chart No. 31 shows the percentage of candidates for each alternative.

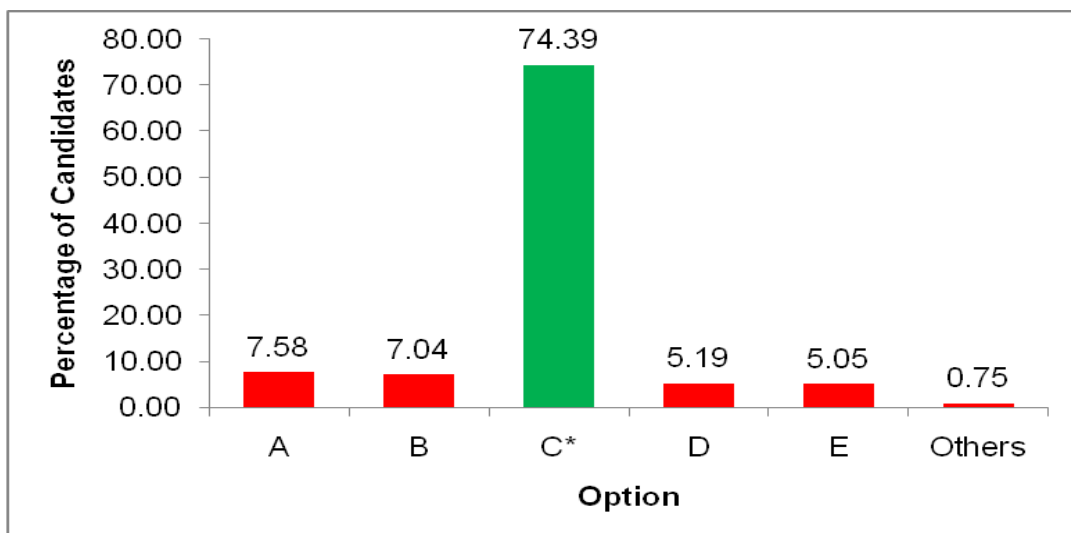


Chart No. 31: *Percentage of candidates for each option.*

The candidates who answered the question correctly realized that the given word problem is solved by subtracting 178 from 672. Therefore, they chose the correct answer C “494” after calculating $672 - 178$.

Conversely, 238,887 (25.61%) candidates chose the incorrect answer A, B, D or E. Most of them did not reduce 1 from a digit of respective place values after borrowing. The candidates who chose distractor A “594” did not reduce a digit of hundreds in 672 by 1 while those who chose distractor E “504” did not reduce a digit of hundreds and tens in 672 by 1. In addition, some candidates were not careful in performing subtraction as they had a wrong step $16 - 7 = 8$ instead of $16 - 7 = 9$, and they ended up choosing the distractor B. Those candidates had the wrong solution as follows:

$$\begin{array}{r} 6 \ 7 \ 2 \\ - \ 1 \ 7 \ 8 \\ \hline 4 \ 8 \ 4 \end{array}$$

Question 38: Musa bought 110 kilograms of wheat flour. If he gave $\frac{1}{5}$ of the flour to his friend, how many kilograms of the flour did he remain with?

- A 88 kg B 98 kg C 22 kg
D 44 kg E 49 kg

The question tested the candidates' competence in solving word problems involving fractions. Chart No. 32 shows percentage of the candidates for each alternative.

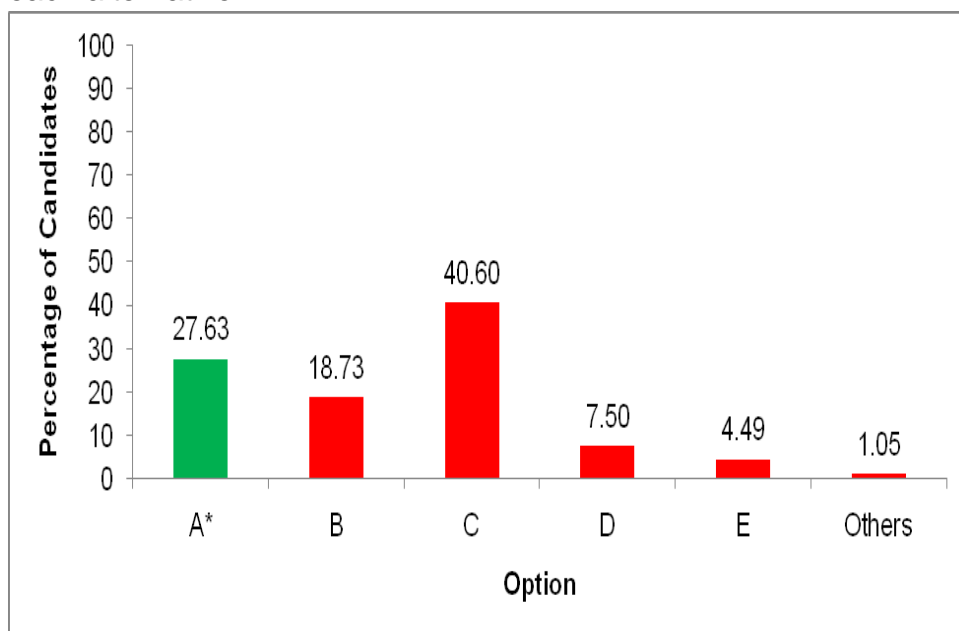


Chart No. 32: *Percentage of candidates for each option.*

As shown in Chart No. 32, the candidates' performance in this question was weak. A total of 675,471 (72.37%) candidates chose the incorrect answer B, C, D or E. The majority focused in calculating the kilograms of flour that Musa gave to his friend instead of the kilograms he remained with. This shows that the candidates could not interpret the word problem correctly. These candidates computed $\frac{1}{5}$ of 110 to get 22, the answer

which led them to choose the distractor C “22”. Also, the working of some candidates indicated that they understood the word problem correctly, but did mistakes in performing subtraction due to failure to adhere to the borrowing technique. These candidates wrote $110 - 22 = 98$ instead of $110 - 22 = 88$, hence they chose the distractor B “98”.

Conversely, 257,843 (27.63%) candidates answered the question correctly. They were able to calculate the product of $\frac{1}{5}$ and 110 correctly to get 22; $\left(\frac{1}{5} \times 110 = 22\right)$. Then, they calculated the difference of 110 and 22 to get 88; $(110 - 22 = 88)$. Therefore, they chose the correct answer A “88 kg”.

Question 39: The average score of 40 pupils in a Science test is 54.8.
What is their total score?

- | | | |
|---------|---------|---------|
| A 2,182 | B 2,192 | C 2,202 |
| D 2,092 | E 2,162 | |

The question tested candidates' competence on the concept of average. The candidates' performance in this question was average as 518,295 (55.53%) candidates attempted the question correctly. The following chart shows the percentage of the candidates for each option.

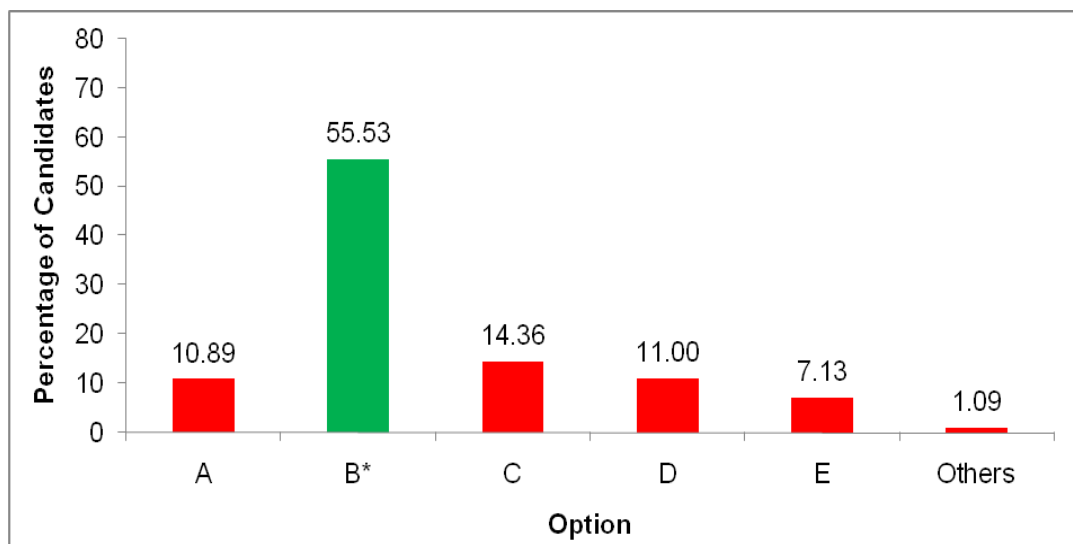


Chart No. 33: *Percentage of candidates for each option.*

The analysis of the candidates' responses shows that competent candidates multiplied the number of candidates (40) by average score (54.8) correctly. Therefore, they chose the correct answer B “2,192”.

However, the analysis of data shows that 315,019 (44.47%) candidates chose incorrect answers A, C, D or E. A common mistake that was noted concerns the candidates' failure to adhere to the correct carrying technique. For example, the candidates who chose distractor E “2,162” did not carry 3 from ones to tens.

Question 40: A right angle is made of two sides which has the length of 6 cm and 8 cm. If the end points of these two sides are joined by a third side, what is its length?

- A 2 cm B 7 cm C 12 cm
D 10 cm E 14 cm

The question tested ability of the candidates to apply Pythagoras theorem. The candidates' performance was weak as shown in Chart No. 34.

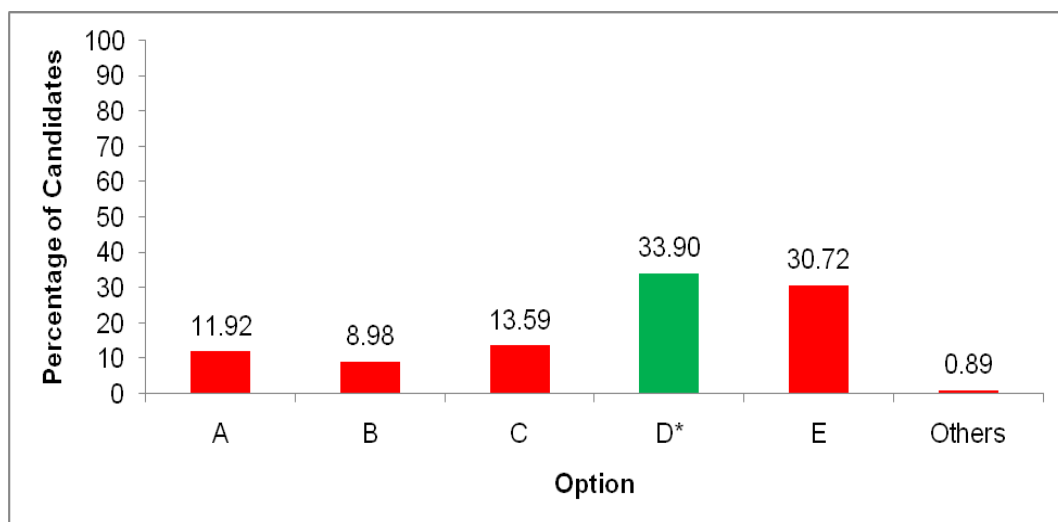


Chart No. 33: *Percentage of candidates for each option.*

A total of 516,927 (66.10%) candidates chose the incorrect answers A, B, C or D. These candidates failed recognise the requirements of the question due to lack of knowledge on relation of sides of right angled triangle and the application of Pythagoras theorem. Most of them calculated the sum of 6 cm and 8 cm to get 14 cm, hence they chose the distractor E. Other candidates chose the distractor A “2 cm” after subtracting 6 cm from 8 cm.

Also, some candidates calculated the average of 6 cm and 8 cm which led them to choose the distractor B “7 cm”.

However, 316,387 (33.90%) candidates managed to analyse the problem clearly and got a correct answer. These candidates realised that the given sides form a right angle at the point of contact (vertex) and the asked side is hypotenuse. Therefore, they applied Pythagoras theorem to get length of hypotenuse as 10 cm. The candidates' working is as follows:

$$6^2 + 8^2 = c^2 \rightarrow 100 = c^2 \rightarrow \sqrt{100} = \sqrt{c^2} \rightarrow c = 10 .$$

2. 2 Section B: Short Answer Items

Question 41: 100 m is equal to how many Kilometres?

The question tested the candidates' competence on relationship between metre and kilometre. The analysis of data shows that only 189,341 candidates, equivalent to 20.28 percent, scored marks ranging from 1.0 to 2.0. Therefore, the candidates' performance in this question was weak. Chart No. 35 shows the candidates' performance in this question.

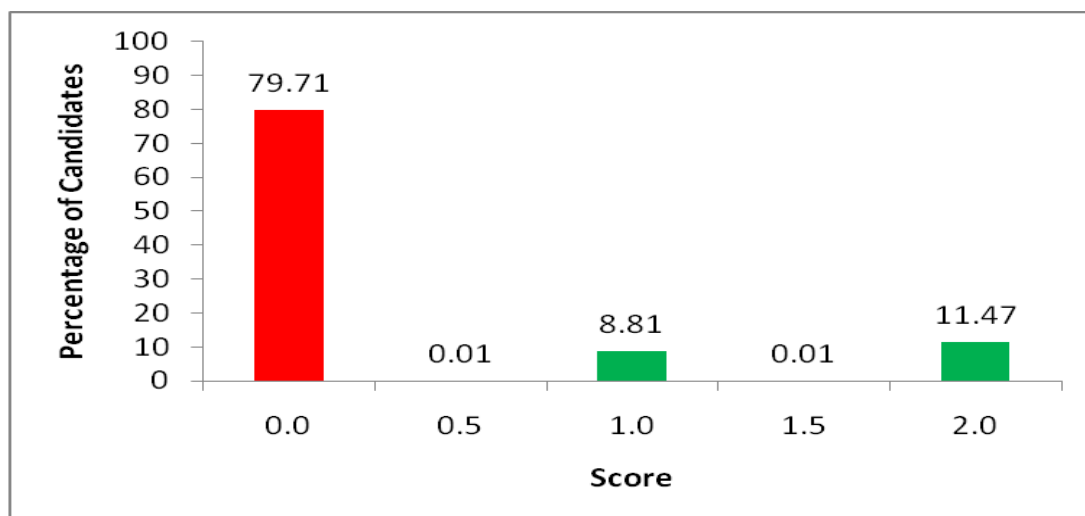


Chart No. 35: *Candidates performance in question 41.*

On the other hand, 743,986 (79.72%) candidates scored 0.5 mark or less. The candidates' solutions revealed that they failed to recognise the relationship between meter and kilometre as some candidates wrote 1 meter equals to 1000 kilometres instead of 1 kilometre equals to 1000 metres. Therefore, they got a wrong answer 100000 kilometres after multiplying 100 by 1000. Also, they failed to convert correctly the given

units. For example, some candidates got 100 kilometres instead of 0.1 or $\frac{1}{10}$ after dividing 100 by 1000. See Extract 41.1.

No.	Question	Working Place	Answer
41.	100 m is equal to how many Kilometers?	$1\text{m} = 1000\text{km}$ $100\text{m} = ?$ $\frac{100\text{m} \times 1000\text{km}}{1\text{m}}$ $= 100,000\text{ km}$	100,000km

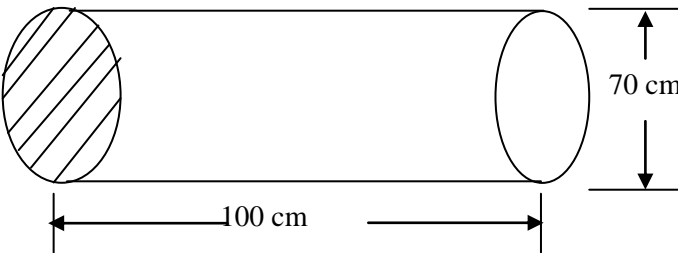
Extract 41.1: An incorrect response from one of the candidates.

However, 107,065 (11.47%) candidates answered this question correctly thereby scoring 2.0 marks. As Extract No. 41.2 shows, these candidates realized that 1 kilometre equals to 1000 metres, hence they divided 100 by 1000 to get 0.1 or $\frac{1}{10}$.

41.	100 m is equal to how many Kilometers?	$1\text{km} = 1000\text{m}$ $100\text{m} = ?$ $\frac{1\text{km} \times 100\text{m}}{1000\text{m}} = \frac{1}{10}\text{km}$ $= 0.1\text{km}$	0.1km or $\frac{1}{10}\text{km}$
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Extract 41.2: A correct response from one of the candidates.

Question 42: Find the volume of the following figure: $\left(\text{Use } \pi = \frac{22}{7} \right)$.



The question tested the ability of the candidates to calculate the volume of a cylinder. The analysis of data shows that only 197,849 (21.19%) candidates scored the marks ranging from 1.0 to 2.0. Therefore, the candidates' performance was weak. Chart No. 36 shows the candidates' percentage and their scores.

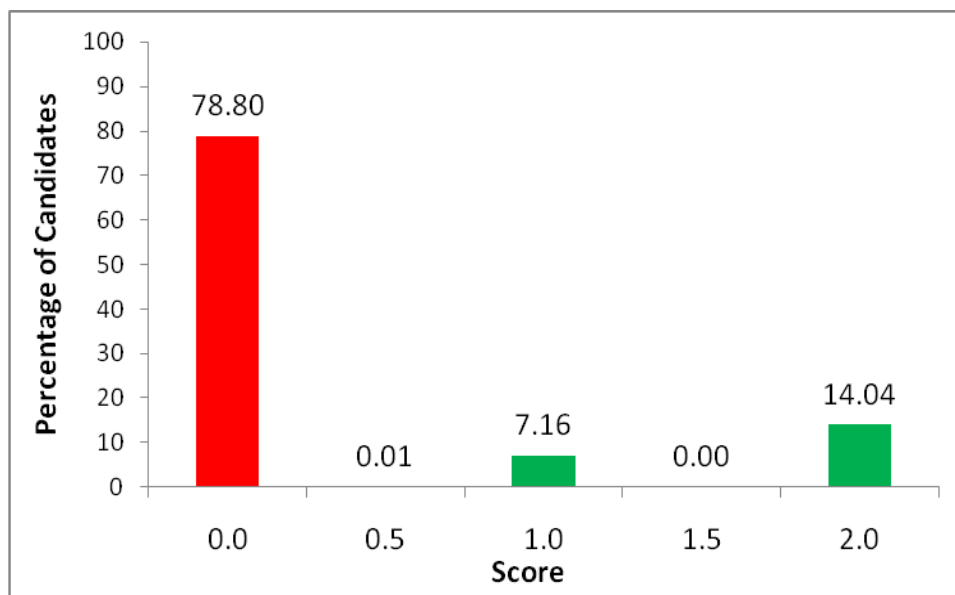


Chart No. 36: *Candidates' performance in question 42.*

A total of 735,478 candidates, equivalent to 78.81 percent scored 0.5 mark or less, whereby 735,430 of these candidates, equivalent to 78.80 percent, scored zero. Some candidates applied the formula $Volume = \frac{\pi d^2 h}{4}$ or $Volume = \pi r^2 h$ by substituting $d = 70\text{ cm}$ and $h = 100\text{ cm}$ or $r = 35\text{ cm}$ and $h = 100\text{ cm}$ correctly, but they made mistakes in multiplying or dividing numbers. Other candidates used formulae that do not relate to the volume of the cylinder as in $Volume = \frac{\pi r^2 h}{2}$ and $Volume = \pi d + d$. Therefore, those candidates got incorrect answer as Extract No. 42.1 shows.

42.	Find the volume of the following figure: (Use $\pi = \frac{22}{7}$).	$D = 70$ $R = 35$ $H = 100$ $\pi R^2 h$ $\frac{22}{7} \times 35 \times 35 \times 100$ $\frac{22}{7} \times 1225 \times 100$ $22 \times 175 \times 100$ 3850×100 385000 420000	420000 cm^3
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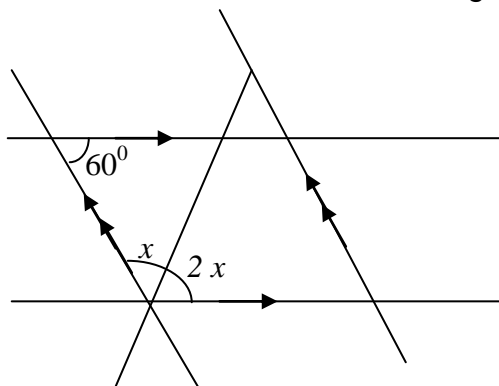
Extract 42.1: An incorrect response from one of the candidates.

The competent candidates were able to substitute $r = 35 \text{ cm}$ and $h = 100 \text{ cm}$ or $r = 70 \text{ cm}$ and $h = 100 \text{ cm}$ into the formula $\text{Volume} = \pi r^2 h$ or $\text{Volume} = \frac{\pi d^2 h}{4}$. Then, they calculated correctly to get $\text{Volume} = 385000 \text{ cm}^3$ as illustrated in Extract 42.2.

42.	Find the volume of the following figure: (Use $\pi = \frac{22}{7}$).	$V = \pi r^2 h$ $\frac{22}{7} \times 35 \times 35 \times \frac{100}{1}$ $22 \times 5 \times 35 \times 100$ $110 \times 35 \times 100$ 3850×100 385000 cm^3 $\therefore V = 385,000 \text{ cm}^3$	$V = 385,000 \text{ cm}^3$
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Extract 42.2: A correct response from one of the candidates.

Question 43: Find the value of x in the following figure:



This question tested the candidates' ability to find the value of x in the given figure. Chart No. 37 depicts the candidates' performance in this question.

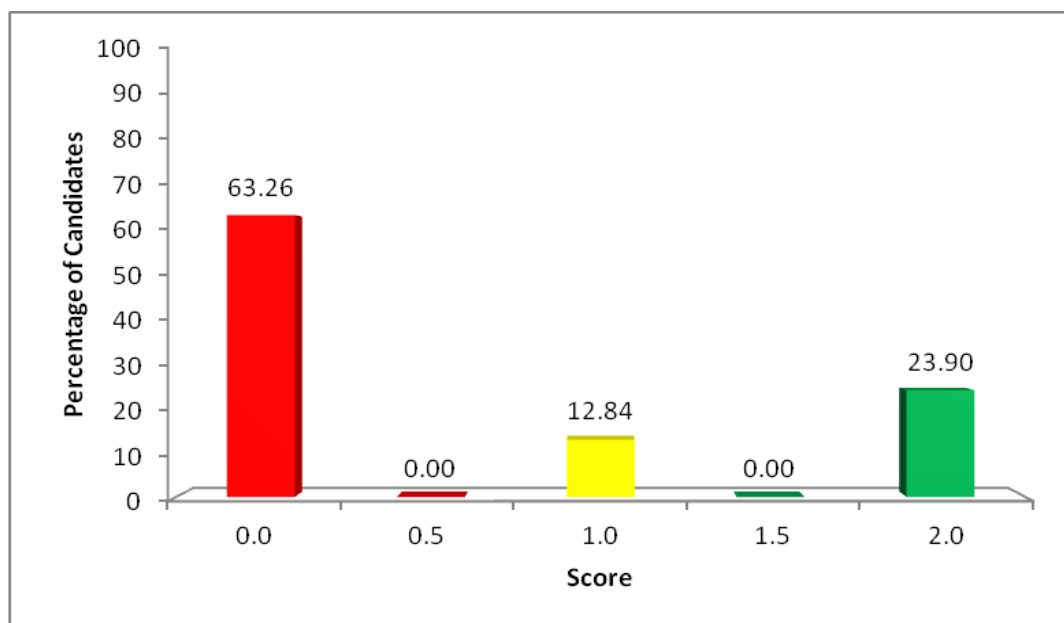


Chart No.37: Candidates' performance in question 43.

The analysis of data shows that 590,418 (63.26%) candidates scored 0. These candidates did not understand that the opposite angles are equal and the corresponding angles are equal. Thus, they failed to formulate the equation $x + 2x + 60^\circ = 180^\circ$. Some candidates calculated the value of x using the wrong equation $x + 2x + 60^\circ = 360^\circ$. Other candidates made algebraic mistakes and even when they were able to form the required equation, they could not find the value of x . Extract 43.1 is a sample solution from a candidate who answered the question incorrectly.

43.	Find the value of x in the following figure.		
		$60^\circ + x + 2x = 360^\circ$ $x + 2x = 360^\circ - 60^\circ = 300$ $\frac{3x}{3} = \frac{300}{3} = 200$ $x = 200$	$x = 200^\circ$

Extract 43.1: An incorrect work from one of the candidates.

Further analysis of data shows that a few candidates (23.90%) scored all 2 marks. These candidates managed to establish the relation between the corresponding angles of a parallelogram and used such relation to formulate the equation $x + 2x + 60^\circ = 180^\circ$ and correctly calculated the value of x . A sample solution from a candidate who answered the question correctly is shown in Extract 43.2.

43.	Find the value of x in the following figure.	$2x + x + 60^\circ = 180^\circ$ $3x + 60^\circ = 180^\circ$ $3x = 180^\circ - 60^\circ$ $3x = 120^\circ$ $\frac{3x}{3} = \frac{120^\circ}{3}$ $x = 40^\circ$	$x = 40^\circ$
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Extract 43.2: A correct response from one of the candidates.

Question 44: A driver travelled a distance of 864 kilometres for 12 hours. What was the speed of the car?

This question assessed the candidates' competence in finding the speed. The analysis of data shows that the candidates' performance in this question was average. The candidates' performance in this question is shown in Chart No. 38.

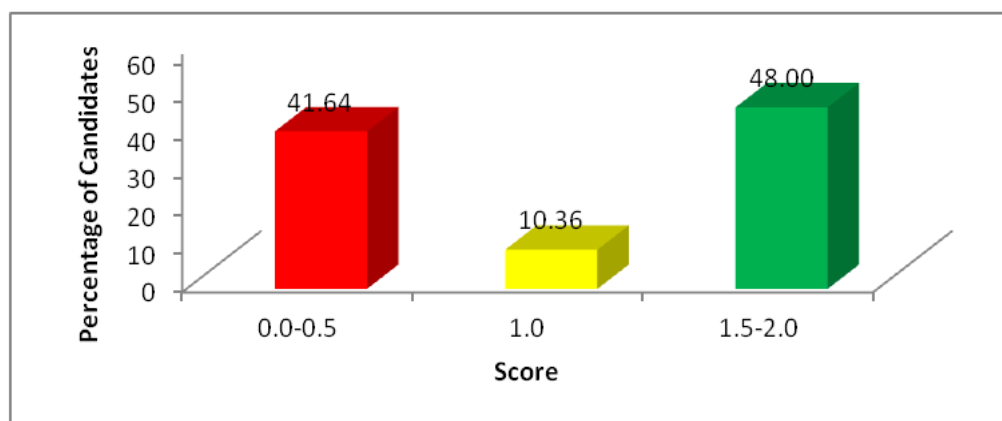


Chart No. 38: Candidates' performance in question 44.

Chart No. 38 shows that 48.00 percent of the candidates scored marks ranging from 1 to 2. The candidates managed to apply the formula, $\text{speed} = \frac{\text{distance}}{\text{time}}$ accordingly thereby obtaining 864 km and 12 hours as distance and time, respectively. Thus, they divided correctly 864 km by 12 hours to get the speed of 72 kilometres per hour. Extract 44.1 is a sample response from a candidate who answered this question correctly.

44.	A driver travelled a distance of 864 kilometres for 12 hours. What was the speed of the car?	<p>Distance = 864 km Time = 12 hours Speed = ?</p> <p>From $S = \frac{D}{T}$ $S = \frac{864 \text{ km}}{12 \text{ h}}$</p> <p>$S = \left(\frac{864}{12}\right) \text{ km/h}$ $S = 72 \text{ km/h}$</p>	The speed of the car was 72 km/h
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Extract 44.1: A correct response from one of the candidates.

Although this question had the highest performance in Section B, 388,464 (41.64%) candidates had insufficient understanding of the formula for calculating the speed. For example, some candidates used the incorrect formulae, such as $\text{speed} = \text{distance} \times \text{time}$ or $\text{speed} = \text{distance} - \text{time}$. Other candidates made computational errors. For instance, they divided 864 by 12 to get 412. Extract 44.2 shows a sample response from one of the candidates who failed to divide the given units.

44.	A driver travelled a distance of 864 kilometres for 12 hours. What was the speed of the car?	<p>12 $\overline{) 864}$</p> <p>864 $\times 12$ <hr/> 1728 $- 864$ <hr/> 10368</p>	10368
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Extract 44.2: An incorrect answer from one of the candidates.

Question 45: John's and Jack's trading companies shared 250 tons of cartons of sugar in the ratio 2:3 respectively. How many tons did Jack's company get?

This question tested the candidates' ability to solve word problems involving ratios. The candidates' performance in this question is shown in Chart No. 39.

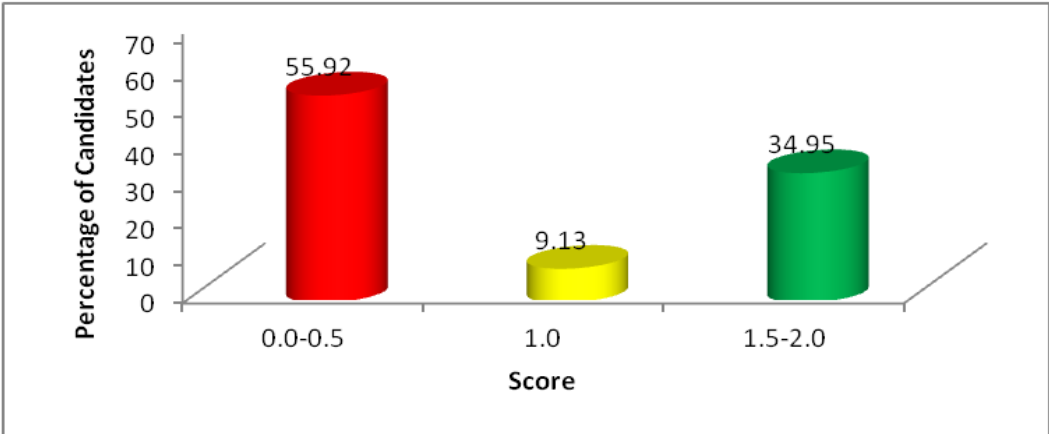


Chart No. 39: *Candidates' performance in question 45.*

Chart No. 39 shows that 521,869 (55.91%) candidates scored 0. Some of the candidates failed to respond to the question correctly because they wrote answers which do not relate to the given ratio. For example, some candidates used the formula for calculating interest; that is $I = \frac{PRT}{100}$. Other candidates did computational errors and got incorrect answers. For example, one candidate wrote $2 + 3 = 7$ and treated 7 as the required tones of sugar. Extract 45.1 shows a sample solution of a candidate who wrote an incorrect answer.

45.	John's and Jack's trading companies, shared 250 tons of cartons of sugar in the ratio 2:3 respectively. How many tons did Jack's company get?	$ \begin{array}{r} 250 + 2 \div 3 \\ 250 + 5 \\ = 250 \\ + \quad 5 \\ \hline 255 \\ = 255 \end{array} $	= <u>255.</u>
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Extract 45.1 *An incorrect answer from one of the candidates.*

However, 326,226 (34.95%) candidates added 2 and 3 to get 5. Then, they computed the required tons of sugar as $\frac{3}{5} \times 250 = 150$. Extract 45.2 shows a sample answer from a candidate who answered this question correctly.

45.	John's and Jack's trading companies, shared 250 tons of cartons of sugar in the ratio 2:3 respectively. How many tons did Jack's company get?	<p>Total ration = 2+3 = 5</p> <p>$\frac{3}{5} \times 250 = 150$</p> <p>3 x 50 = 150</p> <p>Jack's company get 150 tons</p>	<p>Jack's company got 150 tons</p>
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Extract 45.2: A correct answer from one of the candidate.

3.0 A SUMMARY OF THE ANALYSIS OF CANDIDATES' RESPONSES

The analysis of the candidates' responses in the 2019 Mathematics examination shows that, out of 40 questions from Section A, 20 questions were well performed. These questions were set from the topics of *Whole Numbers, Roman Numbers, Coordinate Geometry, Decimals and Fractions*. Further analysis shows that 7 questions were averagely performed. These questions were set from the topics of *Squares and Square Roots, Statistics, Integers, Money and Percentages*. Also, 13 questions from the topics of *Algebra and Geometry* had weak performance.

In Section B, 2 questions were averagely performed. These questions were set from the topics on *Algebra and Geometry*. The remaining 3 questions had weak performance. These questions were set from the topic of *Units*.

The analysis of the candidates' performance topic-wise is shown in Appendices I, II and III.

The weak performance in both Sections A and B was mainly contributed by failure of candidates to apply the appropriate techniques for formulating equations from word problems and geometrical figures. They also failed to apply formulae for finding the area of a circle, triangle, square and the surface area of a rectangular

prism, failure to find the volume of a cylinder and inability to change various units.

4.0 CONCLUSION

Generally, the performance in the Mathematics examination for 2019 has dropped compared to that of 2018. The analysis shows that, out of 13 topics which were examined in 2018, 05 topics which are *Whole Numbers*, *Roman Numbers*, *Coordinate Geometry*, *Decimals* and *Fractions* were well performed. Likewise, 05 topics had a good performance in 2018. These topics are *Whole Numbers*, *Roman Numbers*, *Decimals*, *Fractions* and *Squares and Square Roots*. Thus, the topics of *Whole Numbers*, *Decimals*, *Roman Numbers* and *Fractions* were well performed in both 2018 and 2019 examinations.

Further analysis shows that, in 2019, 05 topics were averagely performed. These topics are *Squares and Square Roots*, *Statistics*, *Integers*, *Money* and *Percentages*. However, in 2018, 07 topics were averagely performed. These topics are *Coordinate Geometry*, *Statistics*, *Money*, *Percentage*, *Algebra*, *Geometry* and *Units*.

On the other hand, the topics of *Algebra*, *Geometry* and *Units* were poorly performed in 2019 while *Integers* is the only topic which was poorly performed in 2018. Thus, the number of topics which were poorly performed has increased from 1 to 3.

The following reasons contributed to the candidates' poor performance: failure of candidates to formulate equations from word problems and geometrical figures; failure of candidates to apply formulae for finding the area of a circle, triangle, square and the surface area of a rectangular prism; the candidates' failure to find the volume of a cylinder and to change various units.

5.0 RECOMMENDATIONS

In order to improve the candidates' performance for future Mathematics examinations, the following are recommended:

- (a) Teachers should put more emphasis on teaching the topics of *Algebra*, *Geometry* and *Units* which were poorly performed.

- (b) Teachers should provide adequate exercises in order to improve the pupils' skills in performing basic mathematical operations, especially on Whole Numbers, Integers, Fractions and Decimals.
- (c) Teachers should use real objects or actions when teaching so as to make learners/ pupils master the lesson.
- (d) Teachers should equip pupils with the ability to form various formulae. For instance, deriving the formula for calculating the perimeter of a rectangle and the surface area of a rectangular prism.

Appendix I

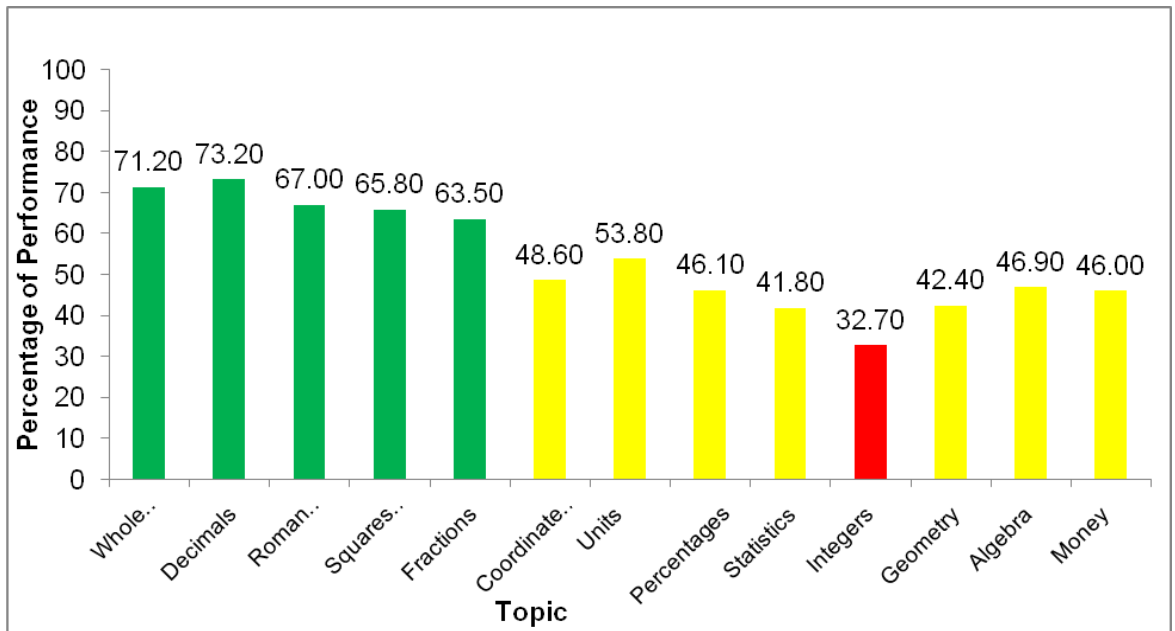
COMPARISON OF CANDIDATES' PERFORMANCE PER TOPIC BETWEEN PSLE 2018 AND PSLE 2019

No	Topic	2018				2019			
		Performance for each Question				Performance for each Question			
		Question Number	Performance (%)	Average Performance(%)	Remarks	Question Number	Performance (%)	Average Performance(%)	Remarks
1	Whole Numbers	1	67.5	71.2	Good	1	88.07	75.01	Good
		3	88.4			2	81.75		
		5	82.7			4	83.82		
		7	71.3			10	75.99		
		14	63.2			15	69.7		
		16	71.8			16	71.55		
		18	61.9			22	71.39		
		39	67.9			34	58.45		
		40	66.3			37	74.39		
2	Roman Numbers	9	67	67	Good	21	72.8	72.8	Good
3	Coordinate Geometry	24	48.6	48.6	Average	29	72.41	72.1	Good
4	Decimals	10	68.4	73.2	Good	3	70.37	66.73	Good
						11	77.87		
		19	78			12	66.6		
						20	52.09		
5	Fractions	2	39.2	63.5	Good	5	68.98	61.93	Good
		4	72.6			6	72.1		
		6	76.3			9	67.93		
		20	66			17	73		
						38	27.63		
6	Squares and Square roots	8	66.1	65.8	Good	8	66.4	55.93	Average
		12	65.9						
		21	65.5			19	45.46		

No	Topic	2018				2019			
		Performance for each Question				Performance for each Question			
		Question Number	Performance (%)	Average Performance(%)	Remarks	Question Number	Performance (%)	Average Performance(%)	Remarks
7	Statistics	35	48	41.8	Average	39	55.53	55.53	Average
		38	46.4						
		42	30.9						
8	Integers	13	40.2	32.7	Weak	7	50.14	50.14	Average
		41	25.2						
9	Money	36	53.4	46	Average	33	45.1	45.1	Average
		45	38.5						
10	Percentage	11	51.5	46.1	Average	13	56.8	42.47	Average
		32	40.6			35	28.14		
11	Algebra	17	38.3	46.87	Average	14	37.89	38.53	Weak
		22	48.4			18	25.28		
		37	53.9			36	46.87		
						45	44.08		
12	Geometry	23	53	42.4	Average	23	18.61	33.62	Weak
		25	30.7			24	64.46		
		26	40			25	41.33		
		27	58.9			26	22.97		
		28	43			27	27.24		
		29	40.3			28	34.12		
		30	59.6			30	31.99		
		31	41.9			31	44.25		
		33	39.4			32	14.18		
		43	17.6			40	33.9		
						43	36.74		
13	Units	15	76.9	53.8	Average	41	20.29	30.28	Weak
		34	37.9			42	21.2		
		44	61.7			44	49.36		

Appendix II

PERCENTAGE OF PERFORMANCE FOR EACH TOPIC



Appendix III

COMPARISON OF CANDIDATES' PERFORMANCE PER TOPIC BETWEEN PSLE 2018 AND PSLE 2019

