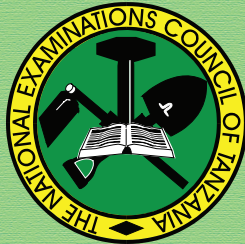


THE NATIONAL EXAMINATIONS COUNCIL OF TANZANIA



**ANALYSIS OF CANDIDATES' RESPONSES TO
PRIMARY SCHOOL LEAVING EXAMINATION
QUESTIONS FOR THE YEAR 2014**

MATHEMATICS

THE NATIONAL EXAMINATIONS COUNCIL OF TANZANIA



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MATHEMATICS

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FOREWORD

The report on the analysis of responses for the Primary School Leaving Examination (PSLE) 2014 has been prepared in order to inform teachers, policy makers, curriculum developers and other education stake holders on how the pupils responded to the questions of that examination. The analysis of candidates' responses shall be one of the indicator that shows areas where pupils were capable and keen in learning and those which they were not.

The analysis of candidates' responses indicates that, the following have attributed to candidates failing to attempt the examination questions correctly: Lack of knowledge and skills in a specific topic, lack of knowledge on the required concepts, the use of incorrect formula, lack of techniques and mathematical logics, choosing more than one option or failure to answer some of the questions.

The National Examinations Council of Tanzania believes that this report will help all education stake holders to analyse the challenges, establish strategies and undertake strong measures on how to solve those challenges in improving the quality of teaching and learning of mathematics subject. The responsible authorities are advised to take into account the identified shortcomings in this report and deal with remedies to the problem.

Lastly the National Examinations Council would like to thank all Examinations Officers and others who participated in preparing this report.

The National Examinations Council will highly appreciate comments and suggestions from various educators and the public that can be used to improve future primary school examination reports.

A handwritten signature in black ink, appearing to be 'C. Msonde', written in a cursive style.

Dr. Charles E. Msonde

THE EXECUTIVE SECRETARY

1.0 INTRODUCTION

The Primary School Leaving Examination in Mathematics subject was done on 10th September, 2014. A total of **808,085** candidates were registered for that examination. Among those registered, **791,869 (97.99%)** candidates sat for the mathematics examination. The analysis of mathematics subject examination results shows that **297,411 (37.56 %)** candidates passed the examination.

This examination had a total of 50 questions which were divided into three main sections: Section A: Mathematical Operations; Section B: Figures and Section C: Word Problems. The candidates were required to answer all questions in all the three sections. Further, the candidates were instructed to solve each question and then shade the letter of the correct answer in the special answer sheet provided.

The candidates' answers were analyzed by identifying the number of candidates who chose the correct answer, those who chose the distracters as well as the possible reasons which might have led them not to choose the correct answers.

The report has shown the general analysis, identifying the questions performance in the respective topics and sections A, B and C. Lastly, the report has shown the conclusion and recommendations to educational stake holders.

2.0 ANALYSIS OF CANDIDATES RESPONSES

This section identifies the questions set for the candidates on mathematical operations, figures and word problems. Each question has five options from which the candidate was to select the best answer. The number of candidates who chose each option and their percentages are identified for each question.

2.1 Section A: Mathematical Operations

Question 1: $0.0027 \div 0.3 =$

A 0.009

B 0.09

C 0.9

D 9

E 90

Candidates' responses

Option	A*	B	C	D	E	Omitted	Others
Number of candidates	364,422	161,094	127,471	105,475	29,809	1,774	1,686
Percentage of candidates	46.03	20.35	16.1	13.32	3.77	0.22	0.21

This question was testing the ability of the candidates to divide decimal numbers. A total of 364,422 (46.03 %) candidates worked out and choose the correct answer which is A “0.009”. These candidates showed ability to divide decimal numbers whereby that answer was attained as follows:

$$0.0027 \div 0.3 = \frac{27}{10000} \div \frac{3}{10} = \frac{27}{10000} \times \frac{10}{3} = \frac{9}{1000} = 0.009.$$

On the other hand, 423,849 (53.54%) candidates chose either distracter B “0.09”, C “0.9”, D “9” or E “90”, a situation which shows that the candidates lacked the skills of dividing decimal numbers. For instance, 161,094 (20.35 %) candidates who chose distracter B “0.09” changed $\frac{9}{1000}$

incorrectly to 0.09 instead of 0.009 which is the correct answer. Apart from that, a total of 1,774 candidates did not attempt this question while 1,686 candidates chose more than one option.

Question 2: $5,103 - 978 =$

- A 4,125
- B 4,135
- C 4,225
- D 4,235
- E 4,025

Candidates' responses

Option	A*	B	C	D	E	Omitted	Others
Number of candidates	541,869	97,975	60,256	40,282	47,960	1,523	1,866
Percentage of candidates	68.44	12.37	7.61	5.09	6.06	0.19	0.24

This item tested the ability of the candidates to subtract whole numbers less than 10,000. This was the third best performed question in this examination. A total of 541,869 candidates equivalent to 68.44 percent were able to calculate and choose the correct answer A “4,125”. This indicates that many candidates had the skills in subtracting whole numbers. However, a few candidates 246,473 (31.13%) either chose an incorrect answer B “4,135”, C “4,225”, D “4,235” or E “4,025”. The presense of these candidates who chose incorrect answers shows how some candidates lacked the skills on how to subtract whole numbers. On the other hand, 1,523 candidates did not answer this question while 1,866 chose more than one option.

Question 3: $345 \times 25 =$

- A 7,625
- B 7,505
- C 8,605
- D 8,525
- E 8,625

Candidates' responses

Option	A	B	C	D	E*	Omitted	Others
Number of candidates	64,602	47,480	52,589	50,786	571,240	2,359	2,675
Percentage of candidates	8.16	6.0	6.64	6.41	72.15	0.3	0.34

Question 3 was testing the ability of the candidates to multiply whole numbers. A total of 571,240 (72.15 %) candidates were able to calculate and choose the correct answer which is E “8,625”. This is the second well performed question in this examination, a fact which shows that the concept of multiplication of whole numbers was well understood by many candidates. However, a total of 215,457 (27.21 %) candidates chose either an incorrect response A “7,625”, B “7,505”, C “8,605” or D “8,525” due to the fact that they had no skills to multiply whole numbers. Moreover, 2,359 candidates did not answer this question while 2,675 candidates chose more than one option.

Question 4: $7\frac{1}{4} \times 2\frac{1}{4} =$

A $14\frac{3}{16}$

B $16\frac{5}{16}$

C $16\frac{6}{16}$

D $16\frac{7}{16}$

E $14\frac{1}{16}$

Candidates' responses

Option	A	B*	C	D	E	Omitted	Others
Number of candidates	114,917	375,601	83,275	64,279	163,679	5,633	2,347
Percentage of candidates	14.51	45.17	10.52	8.12	20.67	0.71	0.3

Question 4 was testing the ability of the candidates in multiplying mixed fractions. Only 375,601 (45.17%) candidates were able to calculate and choose the correct answer which is B " $16\frac{5}{16}$ ". Moreover, 426,150 (53.82 %) candidates multiplied and choose either a distracter A " $14\frac{3}{16}$ ", C " $16\frac{6}{16}$ ", D " $16\frac{7}{16}$ " or E " $14\frac{1}{16}$ " indicating that the sub-topic of multiplication of mixed numbers was not understood by them. For instance, the candidates who chose distracter E " $14\frac{1}{16}$ " which attracted more candidates than other distracters, did not use the important steps to multiply mixed fractions. Therefore they used the following steps incorrectly:

$$7 \times 2 = 14, \quad \frac{1}{4} \times \frac{1}{4} = \frac{1}{16} \quad \text{and therefore} \quad 7\frac{1}{4} \times 2\frac{1}{4} = 14\frac{1}{16}$$

In order to get the correct answer the candidates were supposed to follow the following steps:

$$7\frac{1}{4} \times 2\frac{1}{4} = \frac{29}{4} \times \frac{9}{4} = \frac{261}{16} = 16\frac{5}{16}.$$

Further more, 5,633 candidates did not answer this question while 2,347 candidates chose more than one option.

Question 5: $(-24) - (-10) =$

- A -14
- B -4
- C 34
- D $+14$
- E -34

Candidates' responses

Option	A*	B	C	D	E	Omitted	Others
Number of candidates	301,652	38,737	74,705	248,386	123,632	1,989	2,630
Percentage of candidates	38.1	4.89	9.44	31.37	15.62	0.25	0.33

Question 5 tested the knowledge and skills of the candidates to subtract negative numbers. Only 301,652 (38.1%) candidates were able to calculate and choose A “ -14 ” which is the correct option. However, 485,460 (61.32%) candidates chose either distracter B “ -4 ”, C “ 34 ”, D “ $+14$ ” or E “ -34 ” indicating that the concept of subtracting negative numbers was not understood. For example, 248,386 (31.37%) candidates who were attracted by distracter D “ $+14$ ” wrongly subtracted $(-24) - (-10) = 24 - 10 = 14 = +14$. They were supposed to use the following calculations $(-24) - (-10) = -24 + 10 = -14$. Additionally, 1,989 candidates did not answer this question while 2,630 candidates chose more than one option.

Question 6: $(-18) \times (-18) =$

A -324

B -264

C $+324$

D $+264$

E $+234$

Candidates' responses

Option	A	B	C*	D	E	Omitted	Others
Number of candidates	142,126	61,540	466,319	70,650	45,848	2,951	2,297
Percentage of candidates	17.95	7.77	58.9	8.92	5.79	0.37	0.29

This question was testing the ability of the candidates to multiply negative numbers. A total of 466,319 (58.9 %) candidates were able to calculate and choose C “+324” which is the correct answer. However, 320,164 candidates equivalent to 40.43 percent worked out and choose either an incorrect response A “-324”, B “-264”, D “+264” or E “+234” a situation which shows that they had no knowledge on how to multiply negative numbers. For example, 142,126 (17.95%) candidates who chose the incorrect answer A “-324” multiplied 18×18 but failed to understand that when two negative numbers are multiplied the result is positive. Also, 61,540 (7.77%) candidates who wrongly chose B “-264”, failed to get the correct answer for 18×18 since they forgot to carry number 6 during multiplication of 8×8 . Moreover, 2,951 candidates did not answer this question while 2,297 candidates chose more than one option.

Question 7: $42.092 + 31.572 =$

A 73.164

B 73.264

C 74.164

D 74.264

E 73.664

Candidates' responses

Option	A	B	C	D	E*	Omitted	Others
Number of Candidates	38,051	28,100	27,830	19,315	672,412	1,638	4,385
Percentage of Candidates	4.81	3.55	3.52	2.44	84.93	0.21	0.55

Question 7 was testing the ability of the candidates in adding the decimal numbers. A total of 672,412 (84.93%) candidates seemed to have the ability of adding decimal numbers and chose E “73.664” which is the correct response. This was the best performed question in this examination.

On the other hand, a total of 113,296 (14.32%) candidates chose either distracter A “73.164”, B “73.264”, C “74.164” or D “74.264”. These candidates lacked the knowledge of adding decimal numbers. In this question 1,638 candidates did not answer this question while 4,385 candidates chose more than one option.

Question 8: $9\frac{2}{7} - 6\frac{1}{5} + 1\frac{1}{2} =$

A $4\frac{1}{2}$

B $4\frac{41}{70}$

C $4\frac{1}{70}$

D $4\frac{40}{70}$

E $4\frac{1}{3}$

Candidates' responses

Option	A	B*	C	D	E	Omitted	Others
Number of candidates	130,767	371,818	125,467	84,104	71,673	5,469	2,433
Percentage of candidates	16.52	46.96	15.85	10.62	9.05	0.69	0.31

Question 8 tested the ability of the candidates to add and subtract mixed fractions. A total of 371,818 (46.96%) candidates managed to perform both addition and subtraction operations in this question and chose B " $4\frac{41}{70}$ " which is the correct answer. However, 412,011(52.04%) candidates calculated and chose either distracter A " $4\frac{1}{2}$ ", C " $4\frac{1}{70}$ ", D " $4\frac{40}{70}$ " or E " $4\frac{1}{3}$ " indicating that they had no knowledge of addition and subtraction of mixed fractions. For instance, the candidates who chose distracter A " $4\frac{1}{2}$ " used an incorrect method as indicated in the following steps:

$$9\frac{2}{7} - 6\frac{1}{5} + 1\frac{1}{2} = (9 - 6 + 1)\left(\frac{2 - 1 + 1}{7 - 5 + 2}\right) = 4\frac{2}{4} = 4\frac{1}{2}. \quad \text{On the other hand,}$$

5,469 candidates did not answer this question while 2,433 candidates chose more than one option.

Question 9: $(2\frac{1}{6} - 1\frac{5}{8}) \div 2\frac{5}{8} =$

A $\frac{13}{63}$

B $\frac{3}{63}$

C $\frac{13}{81}$

D $\frac{15}{63}$

E $\frac{15}{81}$

Candidates' responses

Option	A*	B	C	D	E	Omitted	Others
Number of candidates	306,686	169,464	141,967	94,897	65,166	11,390	2,161
Percentage of candidates	38.74	21.4	17.93	11.99	8.23	1.44	0.27

Question 9 tested the ability of the candidates to subtract and divide mixed fractions. A total of 306,686 (38.74%) candidates calculated and chose A " $\frac{13}{63}$ " which is the correct answer. However, 471,494

(59.55%) candidates chose either distracter B " $\frac{3}{63}$ ", C " $\frac{13}{81}$ ", D " $\frac{15}{63}$ ",

or E " $\frac{15}{81}$ " a situation which shows that they lacked knowledge, skills

and accuracy in calculations. For example, 169,464 (21.4%)

candidates who chose B " $\frac{3}{63}$ " had no accuracy in calculations as

they wrote $\frac{3}{63}$ instead of $\frac{13}{63}$. In order to get the correct response

the candidates were supposed to carry out the following steps:

$$\left(2\frac{1}{6} - 1\frac{5}{8}\right) \div 2\frac{5}{8} = \left(\frac{13}{6} - \frac{13}{8}\right) \div \frac{21}{8}, \left(\frac{13}{6} - \frac{13}{8}\right) = \frac{52 - 39}{24} = \frac{13}{24}$$

$$\frac{13}{24} \div \frac{21}{8} = \frac{13}{24} \times \frac{8}{21} = \frac{13}{63}.$$

Moreover, 11,390 candidates did not answer this question while 2,161 chose more than one option.

Question 10: $15,614 - T = 14,659$. The value of T is

- A 855
- B 955
- C 1,055
- D 965
- E 1,065

Candidates' responses

Option	A	B*	C	D	E	Omitted	Others
Number of candidates	63,429	430,920	155,413	62,360	72,516	4,436	2,657
Percentage of candidates	8.01	54.43	19.63	7.88	9.16	0.56	0.34

This item tested the ability of the candidates to find the value of T in the given equation. A total of 430,920 (54.43 %) candidates were able to find the value of T and chose B “955” which is the correct answer. However, 353,718 (44.68%) candidates chose either an incorrect response A “855”, C “1,055”, D “965” or E “1,065”, a situation which shows that they had no knowledge and skills to find the value of the unknown letter in the equation. For example, the candidates who chose C “1,055” made an error while doing the subtraction ($15,614 - 14,659$) whereby they forgot that they borrowed 1 from 6 which is the position of hundreds of 15,614, a

fault which resulted into an incorrect answer of 1,055. On the other hand, 4,436 candidates did not answer this question while 2,657 candidates chose more than one option.

Question 11: $2.3 \times 0.48 \times 1.05 =$

- A 1.0542
- B 1.1382
- C 1.1544
- D 1.1592
- E 1.656

Candidates' responses

Option	A	B	C	D*	E	Omitted	Others
Number of candidates	112,061	87,767	118,460	398,479	63,517	8,830	2,617
Percentage of candidates	14.15	11.09	14.96	50.33	8.02	1.12	0.33

Question 11 was testing the ability of the candidates to multiply decimal numbers. A total of 398,479 (50.33 %) candidates were able to multiply the given numbers and chose D “1.1592” which is the correct answer. However, 381,805 (48.22%) candidates multiplied and chose either distracter A “1.0542”, B “1.1382”, C “1.1544” or E “1.656”, a situation which shows that the candidates had no knowledge and skills to multiply decimal numbers. In addition, 8,830 candidates did not answer this question while 2,617 candidates chose more than one option.

Question 12:

g	mg
13	640
–7	750

- A 5 g 890 mg
- B 6 g 890 mg
- C 6 g 110 mg
- D 6 g 990 mg
- E 5 g 990 mg

Candidates' responses

Option	A*	B	C	D	E	Omitted	Others
Number of candidates	482,972	75,448	107,779	49,302	70,728	2,723	2,779
Percentage of candidates	61	9.53	13.61	6.23	8.93	0.34	0.35

Question 12 tested the ability of the candidates in doing subtraction on measurements of weight. A total of 482,972 candidates equivalent to 61 percent managed to calculate and choose the correct answer which is A “5 g 890 mg”, the fact which shows that they had skills on how to change grams into milligrams and eventually make subtraction. This question was among the best performed questions as more than a half of the candidates who did the examination got the correct answer. However, a total of 303,257 candidates equivalent to 38.3 percent chose either the distracter B “6 g 890 mg”, C “6 g 110 mg”, D “6 g 990 mg” or E “5 g 990 mg” because of lack of knowledge and skills on subtracting measurements of weight. In addition, 2,723 candidates did not answer this question while 2,779 chose more than one option.

Question 13: (9 days 7 hours) \times 6 =

- A 55 days 18 hours
- B 54 days 42 hours
- C 57 days 06 hours
- D 53 days 18 hours
- E 58 days 02 hours

Candidates' responses

Option	A*	B	C	D	E	Omitted	Others
Number of Candidates	158,251	358,948	81,984	72,274	112,581	4,999	2,694
Percentage of Candidates	19.99	45.34	10.36	9.13	14.22	0.63	0.34

Question 13 was testing the ability of the candidates in multiplying the measurements of time. The statistics of candidates' performance in this question shows that only 158,251 (19.99%) candidates were able to calculate and choose the correct answer which is A "55 days 18 hours". In this question 625,787 (79.05%) candidates chose either distracter B "54 days 42 hours", C "57 days 06 hours", D "53 days 18 hours" or E "58 days 02 hours" of which 45.34 percent chose distracter B "54 days 42 hours". These candidates multiplied 7 hours by 6 to get 42 hours but they failed to change these hours into days because they did not recognize the relationship between hours and days. In computing the answer for this question the candidates were supposed to do as follows:

$$(9 \text{ days } 7 \text{ hours}) \times 6$$

$$= (9 \times 6) \text{ days } (7 \times 6) \text{ hours}$$

$$= 54 \text{ days } 42 \text{ hours, but } 42 \text{ hours is the same as } 1 \text{ day and } 18 \text{ hours}$$

$$= 55 \text{ days } 18 \text{ hours}$$

A total of 4,999 candidates omitted this question and 2,694 candidates chose more than one response.

Question 14: If $x : y = 2.5 : 6.5$, find y when $x = 1.5$.

A 3.73

B 3.90

C 4.90

D 9.75

E 10.00

Candidates responses

Option	A	B*	C	D	E	Omitted	Others
Number of candidates	122,528	281,720	143,171	132,106	95,950	13,915	2,341
Percentage of candidates	15.48	35.58	18.08	16.69	12.12	1.76	0.3

Question 14 tested the ability of the candidates to use the concept of ratios to find the value of y in the given equation. Only 281,720 (35.58%) candidates were able to find the value of y and choose B “3.90” which is the correct answer. This answer was obtained through the following steps:

$$x : y = 2.5 : 6.5; \quad \frac{x}{y} = \frac{2.5}{6.5} \quad \text{and thus} \quad y = \frac{1.5 \times 6.5}{2.5} = 3.90.$$

However, 493,755 (62.37 %) candidates chose either an incorrect response A “3.73”, C “4.90”, D “9.75” or E “10.00”, the situation which indicates that candidates could not use the concept of fraction to find the value of y . On the other hand, 13,915 candidates did not answer this question while 2,341 candidates chose more than one option.

Question 15: Find 5 percentage of 5.

- A 0.05%
- B 2.5%
- C 25%
- D 1.00%
- E 0.25%

Candidates' responses

Option	A	B	C*	D	E	Omitted	Others
Number of candidates	59,659	70,378	454,654	91,036	109,550	4,097	2,357
Percentage of candidates	7.54	8.89	57.43	11.5	13.84	0.52	0.3

Question 15 tested the ability of the candidates to find 5 percent of 5. A total of 454,654 (57.43 %) candidates managed to answer this question correctly by choosing the correct option C “25%” which is the correct answer. On the other hand, a total of 330,623 candidates equivalent to 41.77 percent chose either incorrect response A “0.05%”, B “2.5%”, D “1.00%” or E “0.25%” a situation which shows that they had no knowledge in the topic of percentages. For instance, the candidates who chose distracter E “0.25%” calculated 5% of 5 and obtained 0.25 but failed to rewrite this number in order to resemble the given options which are in percentages. Apart from that, 4,097 candidates did not answer this question while 2,357 candidates chose more than one option.

Question 16: Change 0.0011 into percentage.

- A 11%
- B 110%
- C 0.011%
- D 0.11%
- E 1.1 %

Candidates' responses

Option	A	B	C	D*	E	Omitted	Others
Number of candidates	211,777	103,931	152,489	251,273	66,323	3,467	2,471
Percentage of candidates	26.75	13.13	19.26	31.74	8.38	0.44	0.31

This question required the candidates to change the given decimal number into percentage. In this question, 251,273 (31.74%) candidates, were able to change the decimal number into percentage and choose D “0.11%” which is the correct answer. Apart from that, many candidates (67.52%) chose either the incorrect response A “11%”, B “110%”, C “0.011%” or E “1.1 %”, showing that they had no knowledge and skills to change decimal numbers into percentage. For instance, distracter A “11%” which was chosen by many candidates, they wrongly computed: $0.0011 \times 100 = 11\%$ instead of $0.0011 \times 100 = 0.11\%$. On the other hand, 3,467 candidates did not answer this question while 2,471 candidates chose more than one option.

Question 17: Write $2\frac{1}{2}\%$ into a simple fraction.

A $\frac{1}{400}$

B $\frac{1}{48}$

C $\frac{1}{40}$

D $\frac{5}{2}$

E $\frac{5}{200}$

Candidates’ responses

Option	A	B	C*	D	E	Omitted	Others
Number of candidates	81,255	43,052	339,325	184,897	138,251	2,810	2,141
Percentage of Candidates	10.26	5.44	42.86	23.35	17.46	0.35	0.27

Question 17 tested the ability of the candidates in writing $2\frac{1}{2}\%$ as a simple fraction. A total of 339,052 candidates equivalent to 42.86

percent managed to answer this question and chose C " $\frac{1}{40}$ " which is the correct answer. Apart from that, many candidates (56.51%) chose either the incorrect response A " $\frac{1}{400}$ ", B " $\frac{1}{48}$ ", D " $\frac{5}{2}$ " or E " $\frac{5}{200}$ " a situation which shows that they had no knowledge and skills of changing percentages into simple fractions. For example, the candidates who chose the incorrect response D " $\frac{5}{2}$ " which attracted many candidates did not respond according to the requirement of the question as they changed $2\frac{1}{2}$ into improper fraction $\frac{5}{2}$ instead of writing $2\frac{1}{2}\%$ as a simple fraction. The correct answer could be attained by using the following steps:

$2\frac{1}{2}\% = \frac{5}{2}\% = \frac{5}{2} \div \frac{100}{1} = \frac{5}{2} \times \frac{1}{100} = \frac{1}{40}$. On the other hand, 2,810 candidates did not answer this question while 2,141 candidates chose more than one option.

Question 18: Find the value of x in the equation $6x - \frac{3}{2}x = 18$.

A 2

B 6

C $\frac{12}{5}$

D 4

E $\frac{6}{5}$

Candidates' responses

Option	A	B	C	D*	E	Omitted	Others
Number of candidates	146,976	204,771	154,036	208,729	69,790	5,674	1,755
Percentage of candidates	18.56	25.86	19.46	26.36	8.81	0.72	0.22

Question 18 tested the ability of the candidates to find the value of x in the equation $6x - \frac{3}{2}x = 18$. Only 208,729 (26.36%) candidates managed to find the value of x in that equation. Many candidates, (72.69 %) chose either distracter A “2”, B “6”, C “ $\frac{12}{5}$ ”, or E “ $\frac{6}{5}$ ”, a situation which shows that the candidates had no knowledge and skills in solving the equation. For example, 204,771 (25.86 %) candidates who chose the incorrect response B “6” used an incorrect method in obtaining $x = 6$. These candidates did not realise that if $x = 6$ was to be substituted in the given equation, 18 would not have been obtained. In order to attain the correct answer, the candidates were supposed to carry out the following steps:

$6x - \frac{3}{2}x = 18$, $12x - 3x = 36$, $9x = 36$, $x = 36 \div 9 = 4$. Apart from that, 5,674 candidates did not answer this question while 1,755 candidates chose more than one option.

Question 19: Find the quotient when the dividend is 70,035 and the divisor is 203.

- A 335
- B 343
- C 345
- D 347
- E 435

Candidates' responses

Option	A	B	C*	D	E	Omitted	Others
Number of candidates	128,016	108,757	392,314	78,649	74,289	7,522	2,184
Percentage of candidates	16.17	13.74	49.55	9.93	9.38	0.95	0.28

Question 19 tested the ability of the candidates to calculate the quotient when dividend and divisor are provided. A total of 392,314 (49.55 %) candidates managed to calculate the quotient and choose the correct answer C “345”. On the other hand, 389,711 (49.22%) candidates chose either an incorrect response A “335”, B “343”, D “347”, or E “435”, a situation which indicates that these candidates lacked knowledge and skills of dividing and multiplying whole numbers. For example, distracter A “335” was the most attractive. These candidates were unable to realise that when multiplying 335 by 203 the answer could not be 70,035 and therefore 335 would not have been the quotient. Therefore the candidate, could have checked the answer obtained by using the following technique.

$(\text{Dividend}) \div (\text{Divisor}) = (\text{Quotient})$ and the opposite is also correct, that is $(\text{Quotient}) \times (\text{Divisor}) = (\text{Dividend})$. On the other hand 7,522 candidates did not answer this question while 2,184 candidates chose more than one option.

Question 20: Write 2.20 a.m. into 24 hours system.

- A 0220
- B 1020
- C 1620
- D 2020
- E 0820

Candidates' responses

Option	A*	B	C	D	E	Omitted	Others
Number of Candidates	247,692	75,928	141,906	203,828	113,277	6,057	3,043
Percentage of Candidates	31.28	9.59	17.92	25.74	14.31	0.77	0.38

Question 20 tested the ability of candidates to write the time given in 12 hours system into 24 hours system. Only 247,692 (31.28%) candidates managed to answer this question and choose the correct answer A "0220". However, a total of 534,939 (67.56%) candidates chose either distracter B "1020", C "1620", D "2020" or E "0820", a situation which shows that the concept of changing time from 12 hours system into 24 hours system was not understood by many candidates. These candidates lacked the understanding that 24 hours system normally starts with 0100 at 1.00 a.m, 0200 at 2.00 a.m, 0300 at 3.00 a.m and by following this pattern; 2.20 a.m in 24 hours system is 0220, which is the correct answer for this question. In addition, 6,057 candidates did not answer this question whereas 3,043 candidates chose more than one option.

Question 21: Find the next number in the sequence: 24, 27, 31, 36,...

- A 40
- B 41
- C 42
- D 43
- E 46

Candidates' responses

Option	A	B	C*	D	E	Omitted	Others
Number of Candidates	125,268	176,730	383,582	48,934	51,348	3,194	2,675
Percentage of Candidates	15.82	22.32	48.45	6.18	6.49	0.4	0.34

This question required the candidates to study the pattern of numbers given in order to find out the missing number. A total of 383,582 (48.45%) candidates managed to attempt this question correctly and choose the correct answer C “42”. On the other hand, a total of 402,280 (50.81%) candidates chose either distracter A “40”, B “41”, D “43” or E “46” as they lacked knowledge that the numbers in any sequence are obtained by following a certain pattern. The candidates were supposed to know that the second number which is 27 is obtained from the first number 24, the third number 31 is obtained from the second number 27, the fourth number 36 is obtained from the third number 31 and finally this skill would have helped them in determining the missing number. On the other hand, 3,194 candidates did not answer this question while 2,675 candidates chose more than one option.

Question 22: If $a = -2$ and $b = 3$; find the value of $\frac{a^2b - 2ab}{ab + a}$

- A -3
- B 3
- C - 4
- D 6
- E 0

Candidates' responses

Option	A*	B	C	D	E	Omitted	Others
Number of Candidates	198,687	128,390	226,431	130,706	97,268	7,365	2,884
Percentage of Candidates	25.1	16.22	28.6	16.51	12.29	0.93	0.36

Question 22 tested the ability of the candidates in finding the value of the given expression by substituting the numbers that were given and then simplify it. Only 198,687 (25.1%) candidates managed to answer this question correctly and chose the correct option A “– 3”. Nevertheless, a total of 582,795 (73.62%) candidates chose either distracter B “3”, C “– 4”, D “6” or E “0”, an indication that these candidates lacked knowledge and skills on the aspect of finding the value of an expression. In obtaining the required answer, the candidates were required to perform the computations as follows:

$$\begin{aligned}
 \frac{a^2b - 2ab}{ab + a} &= \frac{(-2)(-2)(3) - 2(-2)(3)}{(-2)(3) + -2} \\
 &= \frac{12 + 12}{-6 + -2} \\
 &= \frac{24}{-8} \\
 &= -3
 \end{aligned}$$

This question was omitted by 7,365 candidates while 2,884 candidates chose more than one option.

Question 23: Find the average of the following numbers: 105, 125, 145, 140 and 135.

- A 125
- B 130
- C 135
- D 145
- E 120

Candidates' responses

Option	A	B*	C	D	E	Omitted	Others
Number of Candidates	89,599	423,851	86,643	90,705	93,024	4,865	3,044
Percentage of Candidates	11.32	53.53	10.94	11.46	11.75	0.61	0.38

Question 23 tested the ability of the candidates to find the average of the numbers that were given. A total of 423,851 (53.53%) candidates were able to answer this question and chose the correct option B "130". On the other hand, a total of 359,971 (45.47%) candidates chose either distracter A "125", C "135", D "145" or E "120", a situation which shows that they had no knowledge and skills in calculating the average. In order to get the correct answer, the candidates were firstly supposed to add the given numbers: $105 + 125 + 145 + 140 + 135$ in order to get a total of 650. In their subsequent step they were supposed to divide this total with the number of the terms that were given in order to obtain the average = $\frac{650}{5} = 130$. On the other hand, 4,865 candidates did not attempt this question while 3,044 candidates chose more than one option.

Question 24: Multiply 7 hours and 45 minutes by 9. (Write the answer in minutes).

- A 4,125
- B 4,205
- C 4,175
- D 4,215
- E 4,185

Candidates' responses

Option	A	B	C	D	E*	Omitted	Others
Number of Candidates	116,696	235,960	144,759	96,662	182,430	12,263	2,961
Percentage of Candidates	14.74	29.8	18.28	12.21	23.04	1.55	0.37

Question 24 tested the ability of the candidates to multiply time measurements of hours and minutes by a whole number and write the final answer in minutes. Only 182,430 (23.04%) candidates managed to answer this question and chose the correct option E “4,185”. On the other hand, a total of 594,077 (75.03%) candidates chose either distracter A “4,125”, B “4,205”, C “4,175” or D “4,215”. The presence of such candidates choosing incorrect answers reveals that these candidates lacked knowledge on measurements of time. In order to obtain the correct answer the candidates were supposed to multiply 7 hours and 45 minutes by 9 as follows:

$$\begin{array}{r}
 \text{hours} \quad \text{minutes} \\
 7 \qquad 45 \\
 \times \qquad 9 \\
 \hline
 63 \qquad 405
 \end{array}$$

After this step of multiplication, the candidates were supposed to change the 63 hours obtained into minutes by multiplying 63×60 in order to get 3,780 minutes. Finally, they were supposed to add $3780 + 405$ in order to get 4,185 minutes, which is the correct response. The analysis shows that 12,263 candidates did not attempt this question while 2,961 candidates chose more than one option.

Question 25: Write the roman number MCLXVI into normal numerals.

A 1116

B 1146

C 1166

D 1164

E 1516

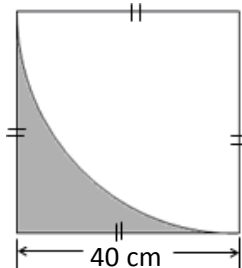
Candidates' responses

Option	A	B	C*	D	E	Omitted	Others
Number of Candidates	72,274	91,697	398,864	69,446	152,492	3,436	3,522
Percentage of Candidates	9.13	11.58	50.38	8.77	19.26	0.43	0.44

Question 25 tested the candidates' knowledge on the topic of Roman Numbers. A total of 398,864 (50.38%) candidates managed to change the given roman numbers into normal numerals and chose the correct response C "1,166". On the other hand, 385,909 (48.74%) candidates chose either the incorrect response A "1,116", B "1,146", D "1,164" or E "1,516", a situation which shows that they lacked the skills of recognising and reading roman numbers and thus failed to answer the given question correctly. In addition 3,436 candidates did not answer this question whereas 3,522 candidates chose more than one option.

2.2 Section B: Figures

Question 26: Find the area of the shaded region in the following figure. (Use $\pi = 3.14$).



A 244 cm^2

B 324 cm^2

C 344 cm^2

D 354 cm^2

E 444 cm^2

Candidates' responses

Option	A	B	C*	D	E	Omitted	Others
Number of Candidates	140,731	164,415	205,952	126,958	138,207	12,311	3,157
Percentage of Candidates	17.78	20.77	26.01	16.04	17.46	1.55	0.4

Question 26 tested the candidates' knowledge and skills to find the area of the shaded part inside the square which has a quarter of a circle that is not shaded. Only a few candidates (26.01%) were able to find the shaded area and chose C " 344 cm^2 " which is the correct response. A total of 570,311 (72.05%) candidates chose either distracter A " 244 cm^2 ", B " 324 cm^2 ", D " 354 cm^2 " or E " 444 cm^2 ", an indicator that they lacked knowledge and skills that were required to answer this question. In order to obtain the correct answer the

candidates were supposed to go through the following steps:

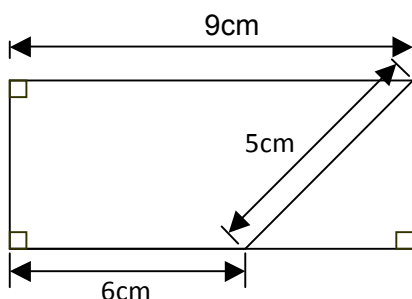
$$\text{Area of the square} = 40\text{cm} \times 40\text{cm} = 1,600\text{cm}^2$$

$$\text{The unshaded area} = \frac{1}{4}\pi r^2 = \frac{1}{4} \times 3.14 \times 40 \times 40 = 1,256\text{cm}^2$$

$$\therefore \text{The shaded area} = 1,600 - 1,256 = 3,44\text{cm}^2$$

Moreover, 12,311 candidates did not answer this question while 3,157 candidates chose more than one option.

Question 27: Find the area of the following figure:



A 30 cm^2

B 36 cm^2

C 45 cm^2

D 54 cm^2

E 20 cm^2

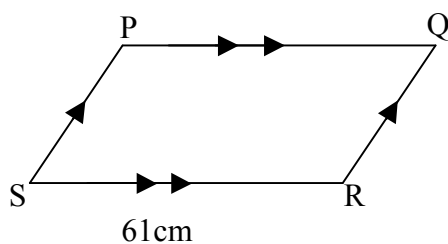
Candidates' responses

Option	A	B*	C	D	E	Omitted	Others
Number of Candidates	126,442	191,957	169,020	126,132	167,514	6,996	3,670
Percentage of Candidates	15.97	24.25	21.35	15.93	21.16	0.88	0.46

Question 27 tested the ability of candidates to use either the formula for the area of a rectangle or the formula for the area of a trapezium and that of a right angled triangle in computing the area of the given

figure. Only 191,957 (24.25%) candidates were able to answer this question and choose B “ 36 cm^2 ” which is the correct response. Nevertheless, a total of 589,108 (74.41%) candidates chose either distracter A “ 30 cm^2 ”, C “ 45 cm^2 ”, D “ 54 cm^2 ” or E “ 20 cm^2 ”. These candidates lacked knowledge and skills of finding area of different figures and therefore computed the area without using any formula. For instance, the candidates who chose either distracter A “ 30 cm^2 ”, C “ 45 cm^2 ” or D “ 54 cm^2 ” multiplied the length of any two sides that they chose from the figure and obtained either $5\text{ cm} \times 6\text{ cm} = 30\text{ cm}^2$, $5\text{ cm} \times 9\text{ cm} = 45\text{ cm}^2$ or $9\text{ cm} \times 6\text{ cm} = 54\text{ cm}^2$ as the area of this figure. It was also noted that 6,996 candidates did not answer this question whereas 3,670 candidates chose more than one option.

Question 28: Find the height of the parallelogram PQRS, if its area is 488 cm^2 .



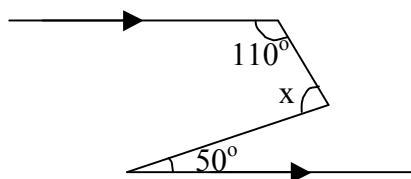
- A 4 cm
- B 16 cm
- C 7 cm
- D 11 cm
- E 8 cm

Candidates' responses

Option	A	B	C	D	E*	Omitted	Others
Number of Candidates	77,259	209,178	103,721	74,492	315,264	8,263	3,554
Percentage of Candidates	9.76	26.42	13.1	9.41	39.82	1.04	0.45

Question 28 tested the ability of candidates to find the height of the parallelogram given its area. A total of 315,264 (39.82%) candidates managed to find that height and choose the correct response which is E “8 cm”. However, a total of 464,650 (58.69%) candidates chose either distracter A “4 cm”, B “16 cm”, C “7 m” or D “11 cm”, a situation which shows that they had no knowledge about the formula for finding the area of a parallelogram. These candidates, were unable to realise that by using the formula "area = base \times height" the responses in option A, B, C and D would have not matched with this formula. Moreover, 8,263 candidates did not answer this question whereas 3,554 candidates chose more than one response.

Question 29: The value of x in the following figure is:



- A 120°
- B 160°
- C 50°
- D 70°
- E 60°

Candidates' responses

Option	A*	B	C	D	E	Omitted	Others
Number of Candidates	131,515	283,833	122,809	127,964	117,150	5,357	3,103
Percentage of Candidates	16.61	35.85	15.51	16.16	14.8	0.68	0.39

Question 29 required the candidates to use the properties of angles made by parallel and transverse lines in finding the value of x in the

given figure. The analysis of performance of candidates in this question shows that only 131,515 (16.61%) candidates were able to calculate the value of x and choose the correct answer which is A “120”. On the other hand, 657,756 (82.32%) candidates chose either distracter B “160”, C “50”, D “70” or E “60”. The presence of such number of candidates who opted for wrong answers indicates that the concept of angles which are made up of parallel and transverse lines was not understood. For instance 28,833 (35.85%) candidates who chose distracter B “160” added the value of angles in degrees which were given in the figure without considering the rules of parallel and transverse lines. In order to get the correct answer the candidates were supposed to carry out the following steps:

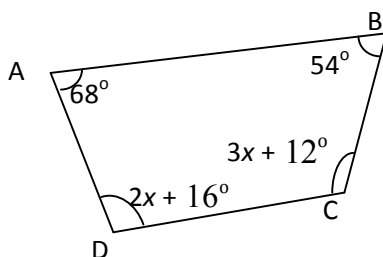
$$x = (180^\circ - 110^\circ) + 50$$

$$x = 70^\circ + 50^\circ$$

$$x = 120^\circ$$

Furthermore, a total of 5,357 candidates omitted this question whereas 3,103 candidates chose more than one response.

Question 30: Find the value of x in the following figure:



- A 35°
- B 40°
- C 42°
- D 44°

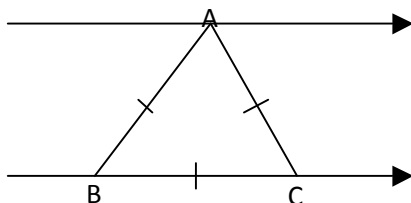
E 45°

Candidates' responses

Option	A	B	C*	D	E	Omitted	Others
Number of Candidates	153,778	123,843	283,120	84,780	133,326	9,864	3,020
Percentage of Candidates	19.42	15.64	35.76	10.71	16.84	1.25	0.38

Question 30 tested the ability of the candidates to find the value of x , given the interior angles of a four sided polygon. A total of 283,120 (35.76%) candidates managed to answer this question and choose C " 42° " which is the correct response. However, a total of 495,727 (62.61%) candidates chose either distracter A " 35° ", B " 40° ", D " 44° " or E " 45° ". The presence of such a big number of candidates who chose incorrect responses is an indicator that they lacked the basic knowledge that a four angled polygon has a total of interior degrees of 360 and therefore they were supposed to formulate the equation $68^\circ + 54^\circ + 2x + 16^\circ + 3x + 12^\circ = 360^\circ$ which they could use to obtain the value of x . Also, it was observed that 9,864 candidates did not answer this question while 3,020 candidates chose more than one response.

Question 31: The name of the figure ABC in the following drawing is:



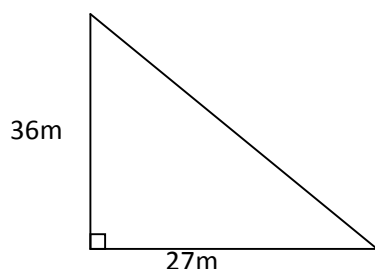
- A equilateral triangle
- B isosceles triangle
- C right angled triangle
- D scalene triangle

E parallel triangle
Candidates' responses

Option	A*	B	C	D	E	Omitted	Others
Number of Candidates	374,187	221,063	67,607	38,446	82,853	4,343	3,232
Percentage of Candidates	47.26	27.92	8.54	4.86	10.46	0.55	0.41

Question 31 required the candidates to identify the name of triangle ABC in the given figure. A total of 374,187 (47.26%) candidates seemed to be aware of the features of an equilateral triangle, that it has three equal sides and hence chose A “equilateral triangle” which is the correct answer. However, a total of 409,969 (51.78%) candidates failed to identify the name of that triangle and hence chose either the incorrect response B “isosceles triangle”, C “right angled triangle”, D “scalene triangle” or E “parallel triangle”, where options B and E attracted more candidates. These candidates were not familiar with the properties of different types of triangles. For instance, the candidates, who chose option B, had a misconception between an isosceles triangle and equilateral triangle. They did not know that an isosceles triangle has two equal sides while an equilateral triangle has three equal sides. Likewise, the candidates who chose option E lacked the knowledge of types of triangles because the type of “parallel triangle” does not exist. Furthermore, a total of 4,343 candidates did not answer this question while 3,232 candidates chose more than one option.

Question 32: Find the perimeter of the following figure.



- A 45 m
- B 63 m
- C 108 m
- D 118 m
- E 486 m

Candidates' responses

Option	A	B	C*	D	E	Omitted	Others
Number of Candidates	96,453	328,889	189,712	59,771	107,335	6,399	3,172
Percentage of Candidates	12.18	41.54	23.96	7.55	13.56	0.81	0.4

Question 32 tested the ability of the candidates to find the perimeter of a right angled triangle. Only a few candidates (23.96%) managed to find the perimeter of the triangle and chose the correct response C “108 m”. However, many candidates (74.83%) chose either the incorrect response A “45 m”, B “63 m”, D “118 m” or E “486 m”, where distracter B “63 m”, attracted more candidates. The presence of a large number of candidates choosing the incorrect responses reveals that these candidates lacked understanding on the concept of finding the perimeter of triangles. For example, the candidates who chose distracter B, added the lengths of the two sides that were

given $(27\text{m} + 36\text{m})$ to obtain 63 m, the answer which was not correct because the perimeter of a triangle comes from adding the lengths of all the three sides. In this question, the candidates were first required to find the length of the hypotenuse of the right angled triangle that was not given by using the Pythagoras theorem as follows:

$$c^2 = a^2 + b^2$$

$$c^2 = 27^2 + 36^2$$

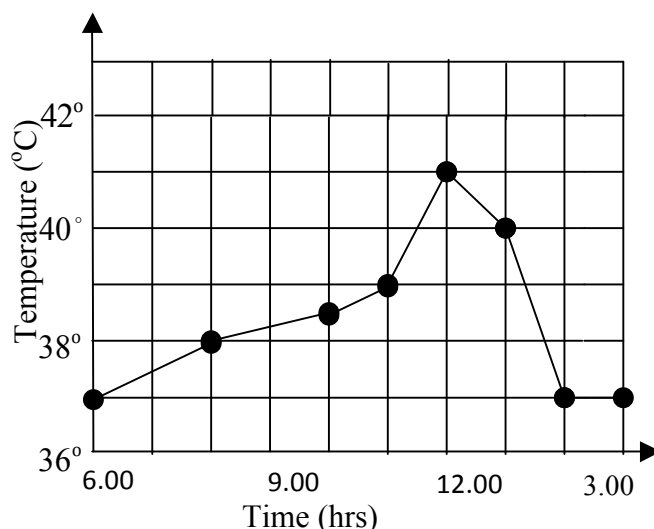
$$c^2 = 727 + 1296$$

$$c^2 = 2025$$

$$c = 45$$

After obtaining the length of the missing side, the candidates were now supposed to add $(27\text{ m} + 36\text{ m} + 45\text{ m})$ to obtain 108 m, which is the perimeter of the triangle that was given. In addition, 6,399 candidates did not respond to this question while 3,172 candidates chose more than one option.

Question 33: The following graph shows temperature-time graph as related to doctor's investigation report of Mariana who arrived at the hospital at 12 noon suffering from fever. How long did it take for Mariana to start getting better?



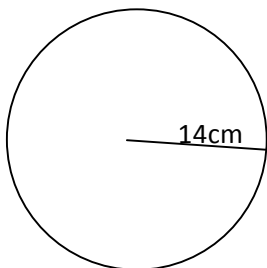
- A 3
- B 4
- C 6
- D 12
- E 9

Candidates' responses

Option	A	B	C*	D	E	Omitted	Others
Number of candidates	213,388	117,062	152,107	176,507	121,715	8,125	2,827
Percentage of candidates	26.95	14.79	19.21	22.29	15.37	1.03	0.36

Question 33 tested the ability of the candidates to read and interpret the data on a line graph and eventually answer the question that was asked. A total of 152,107 (19.21%) candidates managed to interpret the data and chose the correct answer which is C “6”. However, a total of 628,672 candidates equivalent to 79.4 percent chose either distracter A “3”, B “4”, D “12” or E “9”, indicating that many candidates lacked knowledge and skills of reading and interpreting the data on the given graph. In addition, 8,125 candidates did not attempt this question while 2,827 candidates chose more than one option.

Question 34: Find the area of the following circle. (Use $\pi = \frac{22}{7}$).



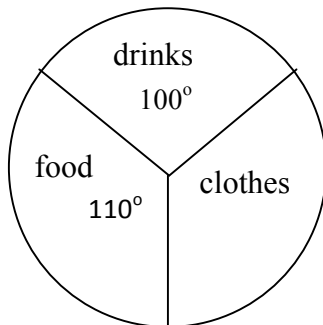
- A 606 cm²
- B 616 cm²
- C 516 cm²
- D 526 cm²
- E 626 cm²

Candidates' responses

Option	A	B*	C	D	E	Omitted	Others
Number of Candidates	74,320	471,126	110,769	66,049	61,525	5,933	2,009
Percentage of Candidates	9.39	59.51	13.99	8.34	7.77	0.75	0.25

In question 34, the candidates were required to find the area of a circle whose radius is 7 cm. A total of 471,126 (59.51%) candidates were able to find the required area and chose the correct answer B "616 cm²". On the other hand, a total of 312,663 (39.49%) candidates chose either distracter A "606 cm²", C "516 cm²" D "526 cm²" or E "626 cm²", a situation which shows that these candidates failed to use the correct formula to find the area of the circle. In order to obtain the correct answer, the candidates were supposed to use the formula " $\text{Area} = \pi r^2$ " to compute the required answer as follows: $\text{area} = \frac{22}{7} \times 14\text{cm} \times 14\text{cm} = 616\text{cm}^2$. On the other hand, 5,933 candidates did not answer this question whereas 2,009 candidates chose more than one option.

Question 35: Jack spent shs. 48,000 in buying drinks, clothes and food. By using the following pie chart, how much money was spent in buying clothes.



- A shs. 24,000
- B shs. 28,000
- C shs. 20,000
- D shs. 40,000
- E shs. 48,000

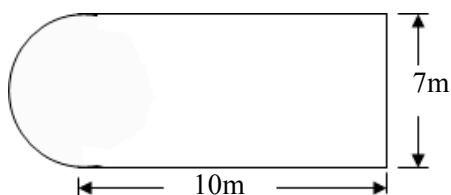
Candidates' responses

Option	A	B	C*	D	E	Omitted	Others
Number of Candidates	139,367	157,955	314,815	74,398	97,575	5,781	1,840
Percentage of Candidates	17.6	19.95	39.76	9.4	12.32	0.73	0.23

In this question, the candidates were required to use the given pie chart to find the amount of money that Jack used to buy clothes. A total of 314,815 (39.76%) candidates managed to find that amount of money and choose C “shs. 20,000” as the correct response. However, many candidates (59.27%) chose either distracter A “shs. 24,000”, B “shs. 28,000”, D “shs. 40,000” or E “shs. 48,000”, where distracter B was chosen by more candidates. These candidates were unable to translate the information given in the pie chart, an indicator that the sub-topic of pie chart was not well known. For

instance, the candidates who chose distracter B used the size of angles for food and drinks to compute $\frac{210}{360} \times 48,000 = \text{shs. } 28,000$ instead of $\frac{150}{360} \times 48,000 = \text{shs. } 20,000$ which is the amount of money used to buy clothes. On the other hand, 5,781 candidates did not answer this question whereas 1,840 candidates chose more than one option.

Question 36: Find the area of the following figure. (Use $\pi = \frac{22}{7}$).



- A 70.0 m²
- B 79.25 m²
- C 79.75 m²
- D 89.25 m²
- E 108.5 m²

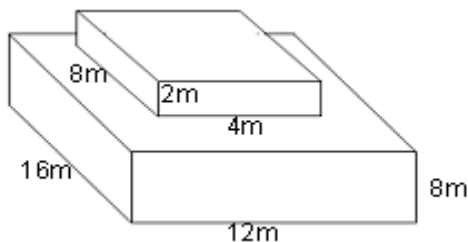
Candidates' responses

Option	A	B	C	D*	E	Omitted	Others
Number of Candidates	194,969	169,649	151,968	144,823	117,114	10,843	2,365
Percentage of Candidates	24.63	21.43	19.19	18.29	14.79	1.37	0.3

Question 36 tested the ability of the candidates to apply knowledge and skills in finding the area of a figure made up of a rectangle and a semi-circle. Only 144,823 (18.29%) candidates were able to find the area of this figure and chose D "89.25 m²" which is the correct

answer. On the other hand, a total of 633,700 (80.04%) candidates chose either the incorrect option A “70.0 m²”, B “79.25 m²”, C “79.75 m²” or E “108.5 m²” ; a situation which shows that they lacked knowledge on the concepts of finding the area of different figures. For instance, the candidates who chose distracter A used the formula $\text{area} = \text{length} \times \text{width}$ to get $\text{area} = 10\text{m} \times 7\text{m} = 70.0 \text{ m}^2$ as the area of the given figure. These candidates did not understand that the given figure was made up of two figures: a rectangle of dimensions $10\text{m} \times 7\text{m}$ and a semi – circle having a diameter of 7m and therefore they were supposed to add the area of the two figures to obtain the required area. On the other hand, 10,843 candidates did not answer this question whereas 2,365 candidates chose more than one option.

Question 37: Find the volume of the following figure:



- A 1,536 m³
- B 1,552 m³
- C 1,600 m³
- D 1,920 m³
- E 1,472 m³

Candidates' responses

Option	A	B	C*	D	E	Omitted	Others
Number of candidates	133,970	148,607	308,999	106,563	79,500	11,411	2,681
Percentage of Candidates	16.92	18.77	39.03	13.46	10.04	1.44	0.34

Question 37 tested the ability of the candidates to find the volume of the figure which is made up of two rectangular cylinders. In this question, a total of 308,999 (39.03%) candidates were able to find the volume of this figure and choose the correct answer which is C “1,600 m³”. On the other hand, a total of 468,640 (59.19%) candidates chose either distracter A “1,536 m³”, B “1,552 m³”, D “1,920 m³” or E “1,472 m³” where the distracter B “1,552 m³” was chosen by more candidates (18.77%). The presence of many candidates who opted for incorrect responses indicates that the concept of how to find volume of rectangular cylinders was not known by these candidates. For instance the candidates who chose distracter B “1,552 m³” found the volume of the given figure wrongly as follows:

Volume of large rectangular cylinder

$$= \text{length} \times \text{width} \times \text{height}$$

$$= 16 \times 12 \times 8$$

$$= 1,536 \text{ m}^3.$$

Volume of small rectangular cylinder

$$= 8 \times 2$$

$$= 16 \text{ m}^3.$$

Volume of the whole figure

$$= 1,536 + 16$$

$$= 1,552 \text{ m}^3.$$

Also, the candidates who chose distracter A “1,536 m³” found the volume of the large rectangular cylinder only as follows:

Volume of the whole figure

$$\begin{aligned} &= \text{length} \times \text{width} \times \text{height} \\ &= 16 \times 12 \times 8 \\ &= 1,536 \text{ m}^3. \end{aligned}$$

In order to answer this question correctly, the candidates were supposed to find the volume of each rectangular cylinder and then add the two answers obtained as follows:

Volume of large rectangular cylinder

$$\begin{aligned} &= \text{length} \times \text{width} \times \text{height} \\ &= 16 \times 12 \times 8 \\ &= 1,536 \text{ m}^3. \end{aligned}$$

Volume of small rectangular cylinder

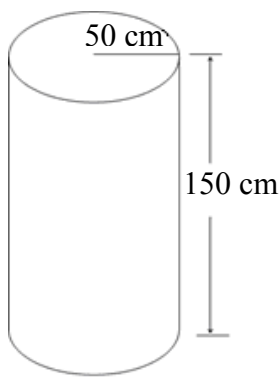
$$\begin{aligned} &= \text{length} \times \text{width} \times \text{height} \\ &= 8 \times 4 \times 2 \\ &= 64 \text{ m}^3. \end{aligned}$$

Volume of the whole figure

$$\begin{aligned} &= 1,536 + 64 \\ &= 1,600 \text{ m}^3. \end{aligned}$$

On the other hand, 11,411 candidates did not answer this question while 2,681 candidates chose more than one option.

Question 38: Find the volume in litres of the following cylinder. (Use $\pi = 3.14$, 1 litre = 1,000 cm³).



- A 117.75
- B 392.50
- C 785.0
- D 1,170.50
- E 1,177.50

Candidates' responses

Option	A	B	C	D	E*	Omitted	Others
Number of Candidates	164,740	161,268	164,032	107,589	178,280	12,363	3,459
Percentage of Candidates	20.81	20.37	20.72	13.59	22.52	1.56	0.44

This question required the candidates to find the volume of a circular cylinder and write the answer in litres. In this question, 178,280 (22.52%) candidates were able to find the volume of the circular cylinder and chose the correct answer which is E "1,177.50". On the other hand, a total of 597,629 (75.49%) candidates opted for either distracter A "117.75", B "392.50", C "785.0" or D "1,170.50". This large number of candidates (75.49%) who chose incorrect responses indicates that the concept of finding the volume of circular cylinder was not known by those candidates. The volume of the circular cylinder could be found as follows:

Volume of circular cylinder = Area of the circle \times Height

$$\begin{aligned}
&= \pi r^2 \times h \\
&= 3.14 \times (50)^2 \times 150 \\
&= 3.14 \times 2,500 \times 150 \\
&= 1,177,500 \text{ cm}^3 \\
&= \frac{1,177,500}{1000} \text{ litres} \\
&= 1,177.50 \text{ litres.}
\end{aligned}$$

Furthermore, 12,363 candidates did not answer this question while 3,459 candidates chose more than one option.

2.3 Section C: Word Problems

Question 39: Kazimoto bought mangoes at shs.5000 and sold them at shs.6000. What was the percentage of the realized profit?

- A 16.7
- B 20
- C 40
- D 83

Candidates' responses

Option	A	B*	C	D	E	Omitted	Others
Number of candidates	149,085	341,450	156,551	71217	59,809	11,012	2,607
Percentage of Candidates	18.83	43.13	19.77	9	7.55	1.39	0.33

Question 39 was testing the ability of the candidates in finding the percentage of a profit in Kazimoto project of selling mangoes. A total of 341,450 (43.13%) candidates were able to find the percentage profit and choose the correct answer which is B "20". On the other hand, a total of 436,662 (55.15%) candidates chose either distracter A "16.7", C "30", D "40" or E "83". These candidates (55.15%) lacked the knowledge of finding the percentage of the realized profit. For instance, the candidates who chose distracter A "16.7" used 6,000

instead of 5,000 as a denominator in the formula to compute the answer for this question, that is,

$$\begin{aligned}\text{Profit} &= \text{Selling price} - \text{Buying price} \\ &= 6,000 - 5,000 \\ &= 1,000\end{aligned}$$

$$\begin{aligned}\text{Percentage profit} &= \frac{\text{Profit}}{\text{Buying price}} \times 100 \\ &= \frac{1,000}{6,000} \times 100 \\ &= 16.7.\end{aligned}$$

In order to answer this question correctly the candidates were supposed to carry out the following steps:

$$\begin{aligned}\text{Profit} &= \text{Selling price} - \text{Buying price} \\ &= 6,000 - 5,000 \\ &= 1,000\end{aligned}$$

$$\begin{aligned}\text{Percentage profit} &= \frac{\text{Profit}}{\text{Buying price}} \times 100 \\ &= \frac{1,000}{5,000} \times 100 \\ &= 20\end{aligned}$$

On the other hand, 11,012 candidates did not answer this question while 2,607 candidates chose more than one option.

Question 40: Amani purchased the following items: 2 bags of sugar @ 25,000/=, 3 pieces of kanga @ 5,000/=, 2 dozen of cups @ 2,800/= and 10 kilograms of potatoes. If he paid shs.91,000/=, what is the price of one kilogram of potatoes?

- A shs. 2,040
- B shs. 2,400
- C shs. 2,140
- D shs. 2,04
- E shs. 1,040

Candidates' responses

Option	A*	B	C	D	E	Omitted	Others
Number of candidates	201,483	284,387	133,287	85,145	72,763	11,558	3,108
Percentage of Candidates	25.45	35.92	16.83	10.75	9.19	1.46	0.39

Question 40 tested the ability of the candidates to analyse the bills and find the price of one Kilogram of potatoes. It is only a few candidates (25.45%) who were able to find the price of one kilogram of potatoes and choose the correct answer A “shs. 2,040”. On the other hand, there were many candidates (72.69%) who either chose distracter B “shs. 2,400”, C “shs. 2,140”, D “shs. 204” or E “ shs. 1,040” which indicates that those candidates lacked the skills to analyse the given bills so as to answer that question. In order to answer this question correctly the candidates were supposed to follow the following steps:

The amount of money used to buy each commodity;

2 bags of sugar @ 25,000 = shs. 50,000

3 pieces of Kanga @ 5,000 = shs. 15,000

2 dozen of cups @ 2,800 = shs. 5,600

The total amount of money which was used to buy sugar, kanga and cups

= shs. 50,000 + shs. 15,000 + shs. 5,600

= shs. 70,600.

The amount of money which was used to buy 10 kilograms of potatoes

= shs. 91,000 – shs. 70,600

= shs. 20,400

The price of one kilogram of potatoes

$$\begin{aligned}
&= \frac{\text{Amount of money used to buy potatoes}}{\text{Number of kilograms of potatoes}} \\
&= \frac{\text{shs. } 20,400}{10} \\
&= \text{shs. } 2,040.
\end{aligned}$$

Furthermore, 11,558 candidates did not answer this question while 31,08 candidates chose more than one option.

Question 41: The $5\frac{1}{4}$ hectares garden was divided into several nurseries of 0.25 hectares each. How many nurseries were obtained?

- A 15
- B 20
- C 25
- D 21
- E 30

Candidates' responses

Option	A	B	C	D*	E	Omitted	Others
Number of candidates	167,054	107,591	209,844	216,567	77,138	10,420	3,117
Percentage of Candidates	21.1	13.59	26.5	27.35	9.74	1.32	0.39

Question 41 tested the ability of the candidates in solving word problems to find the number of nurseries by using the area of the garden and the nursery. A total of 216,567 (27.35%) candidates were able to solve this word problem by finding the number of nurseries and chose the correct answer which is D "21". A total of 561,627 (70.93%) chose either distracter A "15", B "20", C "25" or E "30" indicating that the candidates lacked skills in solving word problem. In solving this word problem, the candidates were supposed to find the number of nurseries as follows:

$$\begin{aligned}\text{Area of the garden} &= 5\frac{1}{4} \text{ hectares} \\ &= \frac{21}{4} \text{ hectares}\end{aligned}$$

$$\begin{aligned}\text{Area of one nursery} &= 0.25 \text{ hectares} \\ &= \frac{1}{4} \text{ hectares}\end{aligned}$$

$$\text{Number of nurseries} = \frac{\text{Area of the garden}}{\text{Area of one nursery}}$$

$$\begin{aligned}\text{Number of nurseries} &= \frac{21}{4} \div \frac{1}{4} \\ &= \frac{21}{4} \times \frac{4}{1} \\ &= 21\end{aligned}$$

In addition, 10,420 candidates did not answer this question while 3,117 candidates chose more than one option.

Question 42: Karina spent $\frac{1}{3}$ of her salary for food, $\frac{1}{4}$ for paying school fees and $\frac{1}{5}$ for other uses. If the money left with her was shs.13,000, what was her monthly salary?

- A shs. 60,000
- B shs. 65,000
- C shs. 78,000
- D shs. 130,000
- E shs. 48,750

Candidates' responses

Option	A*	B	C	D	E	Omitted	Others
Number of candidates	195,499	168,766	166,163	16,7361	77,130	13,831	2,981
Percentage of Candidates	24.69	21.32	20.99	21.14	9.74	1.75	0.38

Question 42 tested the ability of candidates to find the amount of Karina's salary by solving the word problem which is about his salary expenditure. Only a few candidates (24.69%) were able to solve this word problem and chose the correct answer which is A "shs. 60,000". In this question, a total of 579,420 (73.19%) candidates chose either distracter B " shs. 65,000", C " shs. 78,000", D " shs. 130,000" or E " shs. 48,750". The presence of many candidates (73.19%) who opted for incorrect responses indicates that they lacked the knowledge of solving word problems about money. In order to answer this question, the candidates were supposed to follow the following steps:

If Karina's salary is m , then

$$\begin{aligned}\text{The total expenditure of his salary} &= \frac{1}{3}m + \frac{1}{4}m + \frac{1}{5}m \\ &= \left(\frac{1}{3} + \frac{1}{4} + \frac{1}{5} \right) m \\ &= \left(\frac{20 + 15 + 12}{60} \right) m \\ &= \frac{47}{60}m\end{aligned}$$

But, when the total expenditure is subtracted from the monthly salary the remaining amount is shs.13,000 , therefore,

$$\begin{aligned}m - \frac{47}{60}m &= 13,000 \\ \frac{60m - 47m}{60} &= 13,000 \\ \frac{13m}{60} &= 13,000 \\ 13m &= 780,000 \\ \frac{13m}{13} &= \frac{780,000}{13}\end{aligned}$$

$m = \text{shs. } 60,000$ which is the salary of Karina.

Moreover, 13,831 candidates did not answer this question while 2,981 candidates chose more than one option.

Question 43: Maringo Bus Express left Iringa at 6.00 a.m. to Dar es Salaam. It travelled the distance of 640 km at the speed of 80 km per hour. At what time did it arrive in Dar es salaam? (Write the answer in 24 hour clock system).

- A 2400
- B 2000
- C 0200
- D 0800
- E 1400

Candidates' responses

Option	A	B	C	D	E*	Omitted	Others
Number of candidates	155,722	157,562	145,493	141,327	175,737	12,906	2,984
Percentage of Candidates	19.67	19.9	18.38	17.85	22.2	1.63	0.38

Question 43 tested the ability of the candidates to find the time taken by the bus from Iringa to Dar es Salaam and then write the arrival time in Dar es Salaam in 24 hours system. The analysis of the data shows that 175,737 (22.2%) candidates were able to find the arrival time and chose the correct answer which is E "1400". In this question, a total of 600,104 (75.8%) candidates chose either distracter A "2400", B "2000", C "0200" or D "0800". The presence of many candidates (75.8%) choosing incorrect responses indicates that the concept of finding the time by using the formula

time = $\frac{\text{Distance}}{\text{Speed}}$ was not known by these candidates. In addition,

the concept of changing the time from 12 hours system to 24 hours system was not known to them. In order to obtain the correct answer for this word problem, the candidates were supposed to carry out the following steps:

The time used by the bus to travel from Iringa to Dar es Salaam

$$= \frac{\text{Distance}}{\text{Speed}}$$

$$= \frac{6,400}{80}$$

$$= 8.$$

In 24 hour clock system, 12 o'clock in the morning is written as 0600 hours.

The time to arrive in Dar es Salaam in 24 hours system

$$= 0600 + 0800$$

$$= 1400$$

Apart from that, 12,906 candidates did not answer this question while 2,984 candidates chose more than one option.

Question 44 Kawemba had a balance of shs. 10,000 in his mobile phone and he sent one message to each of his three friends. If each message cost shs.150, what was the remained balance in his mobile phone?

- A shs. 9,850
- B shs. 9,950
- C shs. 9,700
- D shs. 9,550
- E shs. 9,055

Candidates' responses

Option	A	B	C	D*	E	Omitted	Others
Number of candidates	231,885	150,484	133,409	205,915	55,776	11,057	3,205
Percentage of Candidates	29.29	19.01	16.85	26.01	7.04	1.4	0.4

Question 44 required the candidates to solve the word problem which involved finding the balance of money in a mobile phone after sending the three messages. It is only a few candidates (26.01%) who were able to solve this word problem and chose the correct answer which is D “shs 9,550”. The analysis of statistics shows that a total of 571,554 (72.19%) candidates either chose distracter A “shs 9,850”, B “shs 9,950”, C “shs 9,700” or E “shs 9,055” a situation which shows that the concept of finding the balance after sending the message was not known to those candidates. For example, the candidates who chose distracter A “shs 9,850” subtracted the cost of one message only ($\text{shs } 10,000 - \text{shs } 150 = \text{shs } 9,850$) instead of subtracting the cost of sending three messages ($\text{shs } 10,000 - \text{shs } 150 \times 3 = \text{shs } 9,550$). The analysis has also observed that the candidates who chose distracter A are more than those who opted for other distracters. Furthermore, 11,057 candidates did not answer this question while 3,205 chose more than one option.

Question 45: Kagondo Hospital has enough food to feed 60 patients in 10 days. If 40 more patients will be admitted, for how many days will the food be enough?

- A 3
- B 4
- C 6
- D 5
- E 7

Candidates' responses

Option	A	B	C*	D	E	Omitted	Others
Number of candidates	126,932	147,439	250,905	138,501	111,340	13,520	3,094
Percentage of Candidates	16.03	18.62	31.69	17.49	14.06	1.71	0.39

Question 45 required the candidates to use the concept of ratios to find the number of days for which the food would be enough for the mentioned number of patients in the given word problem. In this question, a few candidates (31.69%) were able to solve it and chose the correct answer which is C “6”. The statistics show that 524,212 (66.2%) chose either A “3”, B “4”, D “5” or E “7”. The presence of many candidates (66.2%) who chose the incorrect options shows that the concept of solving the word problem which involves ratios was not understood to those candidates. In order to get the correct answer the candidates were supposed to carry out the following steps:

If 60 patients use the food in 10 days, then

The number of days for a single patient to use that food

$$= 10 \times 60$$

$$= 600$$

The number of days for which 100 patients will use that food

$$= \frac{600}{100}$$

$$= 6$$

On the other hand, 13,520 candidates did not answer this question while and 3,094 candidates chose more than one option.

Question 46: Bwere's mother deposited shs.300,000 in a saving account at the interest rate of $7\frac{1}{2}\%$ per annum. After how many years will the interest be shs.45,000?

- A 1
- B 2
- C 3
- D 4
- E 5

Candidates' responses

Option	A	B*	C	D	E	Omitted	Others
Number of candidates	94,090	235,195	180,708	95,141	169,164	14,078	3,355
Percentage of Candidates	11.88	29.71	22.82	12.02	21.37	1.78	0.42

Question 46 tested the ability of the candidates to find the time by solving the word problem where interest, principal and rate in a bank were given. In this question, a few candidates (29.71%) were able to find the time which was asked and chose the correct answer which is B "2". Apart from that, a total of 539,103 (68.09%) chose either distracter A "1", C "3", D "4" or E "5". The presence of many candidates (68.09%) opting for incorrect responses indicates that, those candidates lacked knowledge on solving word problems when given interest, principal and rate in a bank. In order to solve this question the candidates were supposed to carry out the following steps:

$$\text{Interest} = \frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100}$$

$$45,000 = \frac{300,000 \times 7.5 \times \text{Time}}{100}$$

$$\begin{aligned}
\text{Time} &= \frac{45,000 \times 100}{300,000 \times 7.5} \\
&= \frac{45,000 \times 100}{300,000 \times 7.5} = \frac{15}{7.5} \\
&= \frac{150}{75} \\
&= 2
\end{aligned}$$

On the other hand, 140,78 candidates did not answer this question while 3,355 candidates chose more than one option.

Question 47: Rahel gave a 25 percent discount of all goods in her shop. If the price of a radio before discount was shs.100,000, what is its current price?

- A Shs. 7,500
- B Shs. 25,000
- C Shs. 75,000
- D Shs. 125,000
- E Shs. 175,000

Candidates' responses

Option	A	B	C*	D	E	Omitted	Others
Number of candidates	101,089	222,539	246,135	124,463	81,306	13,544	2,655
Percentage of Candidates	12.77	28.11	31.09	15.72	10.27	1.71	0.34

Question 47 tested the ability of candidates to find the price of a radio after a 25 percent discount. In this question, 246,135 (31.09%) candidates were able to find the new price after the deduction of 25 percent and they chose the correct answer which is C "75,000". Apart from that, a total of 529,397 (66.87%) chose either distracter

A “7,500”, B “25,000”, D “125,000” or E “175,000” of which 28.11 percent chose distracter B “25,000”. The presence of many candidates (66.87%) who chose the incorrect responses indicates that those candidates lacked knowledge on the topic of money and hence failed to find the new price of the radio after the discount of 25 percent. For example, the candidates who chose distracter B “25,000” found the amount of discount only instead of the required new price as follows:

The new price of the radio

= 25 percent of the old price of the radio

$$= \frac{25}{100}(100,000)$$

= 25,000 .

The candidates were supposed to find the new price of the radio as follows:

New price of the radio

= Old price - 25 percent of the old price

$$= 100,000 - \frac{25}{100}(100,000)$$

= 100,000 – 25,000

= 75,000 .

Furthermore, 13,544 candidates did not answer this question while 2,655 candidates chose more than one option.

Question 48: Kamunonge poultry farm sold 1,995 hens at shs.3,990,000. What was the average cost per hen?

A 1,500

B 2,250

C 2,500

D 1,800

E 2,000

Candidates' responses

Option	A	B	C	D	E*	Omitted	Others
Number of candidates	102,629	146,963	178,821	102,295	243,605	14,154	3,264
Percentage of Candidates	12.96	18.56	22.59	12.92	30.77	1.79	0.41

Question 48 tested the ability of the candidates in solving a word problem which was on average sales of hens. In this question, 243,605 (30.77%) candidates were able to find the average price for one hen and chose the correct option which is E “2,000”. On the other hand, 530,708 (67.03%) candidates chose either distracter A “1,500”, B “2,250”, C “2,500” or D “1,800”. The presence of many candidates (67.03%) choosing the incorrect responses, shows that they lacked knowledge on the topic of money and hence failed to find the average price for one hen. In order to solve this word problem, the candidates were supposed to carry out the following steps:

The average price for one hen

$$\begin{aligned}
 &= \frac{\text{Total amount of money obtained from the sales of hens}}{\text{Number of hens which were sold}} \\
 &= \frac{3,990,000}{1995} \\
 &= 2,000.
 \end{aligned}$$

On the other hand, 14,154 candidates did not answer this question while 3,264 candidates chose more than one option.

Question 49: Mr. Sakieli had 45 nurseries in his shamba for planting 10,350 fruit seedlings. If equal number of seedlings were planted in each nursery, how many seedlings were planted in each nursery?

- A 230
- B 220
- C 203
- D 234
- E 245

Candidates' responses

Option	A*	B	C	D	E	Omitted	Others
Number of candidates	305,683	139,104	150,810	73,199	107,528	13,162	2,245
Percentage of Candidates	38.61	17.57	19.05	9.25	13.58	1.66	0.28

Question 49 tested the ability of the candidates in solving the word problem which was about division of whole numbers so as to obtain the number of seedlings planted in each nursery. A total of 305,683 (38.61%) candidates were able to solve this word problem by finding the seedlings which were planted in each nursery and chose the correct answer which is A “230”. On the other hand, a total of 470,641 (59.45%) candidates chose either distracter B “220”, C “203”, D “234” or E “245”. The presence of many candidates (59.45%) who chose the incorrect responses indicates that those candidates lacked the knowledge of solving the word problem about whole numbers. In order to obtain the correct answer the candidates were supposed to carry out the following steps:

The number of seedlings in each nursery

$$= \frac{\text{Total number of seedlings}}{\text{Number of nurseries}}$$

$$= \frac{10,350}{45} = \frac{2,070}{9}$$

$$= 230.$$

On the other hand, 13,162 candidates did not answer this question while 2,245 candidates chose more than one response.

Question 50: Shukuru did five tests in preparation for Primary School Leaving Examination (PSLE) 2011 and his average score was 63 marks. If the scores for four tests were 54, 48, 78 and 60, what was the score of the fifth test?

- A 48
- B 60
- C 61
- D 65
- E 75

Candidates' responses

Option	A	B	C	D	E*	Omitted	Others
Number of candidates	111,498	164,411	111,861	121,589	267,790	12,668	1,914
Percentage of Candidates	14.08	20.77	14.13	15.36	33.82	1.6	0.24

Question 50 tested the ability of the candidates to calculate the score of the fifth test when the scores of four tests and the average of all tests were given. In this question, 267,790 (33.82%) candidates were able to calculate the score of the fifth test correctly and chose the correct response which is E "75". A total of 509,359 (64.34%) candidates chose either distracter A "48", B "60", C "61" or D "65" where many candidates (20.77%) chose distracter B "60" as compared to other distracters. The presence of many candidates (72.69%) choosing the incorrect responses indicates that they did not know how to find the average. For example, the candidates who

chose distracter B “60” found the average of the four scores instead of finding the score of the fifth subject by doing as follows:

The score of the fifth subject

$$\begin{aligned} &= \frac{54 + 48 + 78 + 60}{4} \\ &= \frac{240}{4} \\ &= 60 \end{aligned}$$

In order to get the correct answer the candidates were supposed to carry out the following steps:

$$\text{Average score} = \frac{\text{Sum of scores}}{\text{Number of score}}$$

If the score of the fifth subject is x

$$\begin{aligned} 60 &= \frac{54 + 48 + 78 + 60 + x}{5} \\ 63 &= \frac{240 + x}{5} \\ 315 &= 240 + x \\ x &= 315 - 240 \\ x &= 75 \end{aligned}$$

On the other hand, 12,668 candidates did not answer this question while 1,914 chose more than one option.

3.0 GENERAL ANALYSIS

The analysis of each question on the candidates’ performance shows that, the question which was answered correctly by more candidates was question 7 from the topic of decimals. The other three questions that were well performed were questions 3 and 2 on whole numbers, and question 12 on measurements. On the other hand, question 29 on geometry was the worst performed question. The next three questions which were poorly performed were question 36 on geometry, 33 on statistics and 13 on measurements.

Further analysis on sections A, B and C of the 2014 mathematics paper shows that the average performance in these sections were

46.42 in section A on mathematical operations, 31.69 in section B on figures and 30.38 in section C on word problems.

It was also noted that all the three best performed questions in this examination were from section A whereas the three worst performed questions were from section B. Many candidates responded poorly to questions that were on figures and word problems as compared to questions on mathematical operations.

The overall analysis based on the 11 major topics that were examined shows that 5 topics had an average performance while the remaining 6 topics had poor performance. The topics with average performance were: percentages, decimals, negative and positive numbers, whole numbers and roman numbers. On the other hand, the topics with poor performance were: algebra, money, geometry, fractions, statistics and measurements. There were no well performed topics in the 2014 mathematics examination. The analysis of performance for each topic in mathematics subject is presented in the Appendix.

In 2013 mathematics examination, the overall performance on the topics examined were as follows: One topic of roman numbers had a good performance; two topics of decimals and whole numbers had average performance and eight topics of negative and positive numbers, percentage, fractions, statistics, algebra, geometry, measurements and money had a poor performance.

The comparison of the candidates performance for the year 2013 and 2014 shows that there is a positive increase in performance as the topics with average has increased from 2 to 5 (see Appendix).

4.0 CONCLUSION

In general, the analysis of individual questions as well as the topics examined show that the overall performance in mathematics examination is still very low.

The factors which have contributed to the poor performance are as follows: The candidates lack of knowledge and skills in the examined concepts, incompetence to translate word problem into mathematical equations and diagram, failure to use various mathematical formula correctly such as the formula to find the

perimeter of the triangle, failure to identify the requirement of the question, failure to answer some of the questions or choosing more than one response.

Many candidates had poor responses to questions from the topics of fractions, statistics, algebra, geometry, measurements and money. On the other hand, the candidates had no knowledge and skills in responding to questions which had the concepts of negative and positive numbers, area and word problems. For instance, many candidates failed to use various mathematical formulae correctly such as the formula for finding the perimeter of a right angled triangle. The way candidates answered implies that they did not do enough exercises.

5.0 RECOMMENDATIONS

In order to raise the standard of performance in this subject it is recommended that;

- (a) The responsible authority should ensure that all schools have sufficient mathematics teachers to teach and cover all topics which are in the syllabus.
- (b) The responsible authority should ensure that all schools have sufficient and competent teachers who can teach mathematics competently because many candidates could not even answer the question with basic concepts correctly.
- (c) Teachers should put emphasis in teaching concepts which many candidates did not do well. For instance the concepts of positive and negative numbers, fractions, percentage, decimals, formula to find area and perimeter of various figures including word problems and money.
- (d) The school inspectors should make a close supervision on the teaching of the subject and make sure there is a proper use of

various mathematical formulae in calculations so as to build the required skills and knowledge to the pupils.

- (e) The candidates should be encouraged to do enough exercises to get experience in using various formula according to the requirements of the question. In addition, the candidates should be encouraged to build the habit of reading the questions carefully and identify the requirements before performing any task.

Appendix

COMPARISON OF CANDIDATES PERFORMANCE BY TOPIC IN PSLE 2013 AND PSLE 2014 IN MATHEMATICS

No	Topic	2013				2014			
		Question Number	Percentage of performance	Average performance	Remarks	Question Number	Percentage of Performance	Average Performance	Remarks
1	Decimals	1	79.58	55.97	Average	1	46.03	60.43	Average
		11	51.26			7	84.93		
		12	56.77			11	50.33		
		3	36.26						
2	Whole numbers	10	49.91	48.08	Average	2	68.44	55.44	Average
		16	49.36			3	72.15		
		2	78.52			19	49.55		
		22	26.02			21	48.45		
		23	34.03			49	38.61		
		4	50.65						
3	Roman Numbers	21	65.61	65.61	Good	25	50.38	50.38	Average
4	Positive and Negative Numbers	7	26.5	26.99	Poor	5	38.1	48.50	Average
		8	27.48			6	58.9		
5	Percentage	17	30.39	30.39	Poor	15	57.43	44.01	Average
						16	31.74		
						17	42.86		
6	Fractions	13	26.46	38.76	Poor	4	45.17	36.58	Poor
		20	42.16			8	46.96		
		24	27.32			9	38.74		
		5	51.14			41	27.35		
		6	37.83			42	24.69		
		9	47.65						
7	Statistics	35	31.64	28.26	Poor	23	53.53	36.58	Poor
		38	28.69			33	19.21		
		47	24.46			35	39.76		
						50	33.82		
8	Algebra	14	39.86	26.17	Poor	10	54.43	34.63	Poor
		18	21.09			14	35.58		
		43	25.69			18	26.36		
		44	36.59			22	25.1		
		46	28.05			45	31.69		
		48	13.48						
		49	18.42						
9	Geometry	26	24.45	23.24	Poor	26	26.01	32.09	Poor
		27	30.81			27	24.25		
		28	25.77			28	39.82		
		29	28.55			29	16.61		
		30	18.39			30	35.76		
		31	33.69			31	47.26		
		33	20.19			32	23.96		
		34	19.19			34	59.51		
		36	22.37			36	18.29		
		37	17.45			37	39.03		
		42	14.77			38	22.52		
10	Measurement	25	18.69	18.63	Poor	12	61.00	31.50	Poor
						13	19.99		

No	Topic	2013				2014			
		Question Number	Percentage of performance	Average performance	Remarks	Question Number	Percentage of Performance	Average Performance	Remarks
11	Money			29.07	Poor	20	31.28	31.03	Poor
		39	15.43			24	23.04		
		50	21.76			43	22.20		
		40	33.47			39	43.13		

