MATHEMATICS 2

1. GENERAL COMMENTS

The standard of the paper was comparable to the previous year's. Candidates' performance was slightly better than that of last year. The questions were within the syllabus and there was no ambiguity in any of the questions.

2. CANDIDATES' STRENGTHS

Candidate performed well in the following areas of mathematics;

(1) Finding Least Common Multiple (L.C.M.)

(2) Solving Linear Equation

(3) Solving question on Ratio

(4) Simplification of algebraic expression

(5) Simplification of percentage to lowest term.

(6) Adding of vectors

(7) Plotting line graph

(8) Construction of frequency table and finding the mode and mean.

3. CANDIDATES' WEAKNESSES

The weaknesses of candidates were evident in their inability to:

(1) Simplify equation to the form $\frac{q}{p}$

(2) label Venn diagram and solve problem in sets

(3) find angle in a triangle (Exterior angle equal to semi of two interior opposite angles)

(4) find equation of a line

(5) find median from frequency table.

5. SUGGESTED REMEDIES

(1) Candidates should be encouraged to analyse questions well before attempting to answer them

(2) Teachers should prepare students adequately for examination by giving more exercises on the topics listed as their weaknesses.

1. (a) Given that X = {whole numbers from 4 to 13}and Y = {multiples of 3 between 2 and 20}, find $X \cap Y$.

(b) Find the Least Common Multiple (L.C.M) of the following numbers:3,5 and 9.

(c) If $\frac{p+2q}{p} = \frac{7}{5}$, find the value of $\frac{q}{p}$, where $p \neq 0$.

Most candidates attempted this question. In part (a), candidates listed the members of sets x and y and found the intersection very well. Only few candidates failed to provide the curly brackets.

In (b), candidates demonstrated the true understanding of least common multiple (L.C.M). It was well done. Most candidates did not perform well in the (c) part of the question. They solved the question to a point but were unable to express the answer in the form $\frac{q}{p}$ required in the question.

2. (a) Solve: $\frac{4x+5}{5} + \frac{x-3}{4} = -1$.

(b) The ratio of boys to girls in a school is 12:25. If there are 120 boys,

(i) how many girls are in the school?

(ii) what is the total number of boys and girls in the school?

(c) Simplify: $(8x^2y^3)\left(\frac{3}{8}xy^4\right)$.

It was a popular question. In the (a) part, candidates multiplied through by 20 to clear fraction, removed brackets and solved the question very well. In the (b) part the ratio was well done candidates found the number of girls and went on to calculate the total number of boys and girls in the school. In (c), candidates were to simplify $(8x^2y^3)\left(\frac{3}{8}xy^4\right)$. They did very well in the simplification and also applied the laws of indices to get correct answer.

3. (a) In an examination , 60 candidates passed Integrated Science or Mathematics. If 15 passed both subjects and 9 more passed Mathematics than Integrated Science, find the:

(i) number of candidates who passed in each subject;

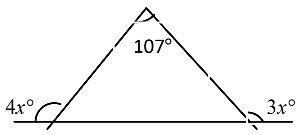
(ii) probability that a candidate passed exactly one subject.

(b) Factorize: $xy + 6x\ 3y + 18$.

This was quite unpopular. The few who attempted did not perform well. The venn diagram was not well labelled and candidates also got the entries wrong. The candidates could not find those who passed in each subject however they demonstrated the concept of probability well. In (b), most candidates were able to factorize the expression and answered the question well.

4. (a) Express 250% as fraction in its lowest term.

(b)



Not Drawn To Scale

Use the diagram to find the value of x.

(c) Simplify: $2 \div \left(\frac{15}{64} + \frac{6}{7}\right)$.

(d) If q = $\begin{pmatrix} 7 \\ -1 \end{pmatrix}$ and r = $\begin{pmatrix} 4 \\ -5 \end{pmatrix}$, find (q + r).

In the (a) part most candidates were able to express 250% as fraction and simplified to the lowest term. The (b) part was poorly done. Candidates presentation showed complete ignorance of plane Geometry. They could not find the value of x. In (c) most candidates did well by solving this question . However most candidates could not simplify to the final answer. In the (d) the substitution and addition of vectors was well done.

5.

x	**1**	**2**	**3**	**4**	**5**
↓	↓	↓	↓	↓	↓
y	**0**	**3**	**6**	**9**	**12**

The mapping shows the relationship between x and y.

(i) using a scale of 2cm to 1 unit on the x – axis and 2cm to 2 units on the y axis, draw two perpendicular axes 0x and 0y on a graph sheet for $1 \leq x \leq 5$ and $0 \leq y \leq 14$;

(ii) plot the point for each order pair, (x,y);

(iii) join the points with a straight line;

(iv) using the graph, find the gradient of the line in 5 (a) (iii);

(v) use the graph to find the equation of the line in 5 (a)(iiii).

(b) **Simplify: $32 \times 8 \times 4 \times 2$, leaving the answer in the form 2^n**

Most candidates avoided this question. Few who attempted drew the line graph well. However were unable to find the gradient from the graph. The equation of the line was also poorly done.

6. The marks obtained by students in a class test were

4	**8**	**7**	**6**	**7**
2	**1**	**7**	**4**	**7**
3	**7**	**6**	**4**	**3**
7	**5**	**2**	**7**	**2**
5	**4**	**8**	**3**	**2**

(a) **Construct a frequency distribution table for the data.**

(b) **Find the:**

(i) mode of the distribution;

(ii) median mark of the test;

(iii) mean mark.

This was a very popular question and candidates performance was very good. Candidates were able to construct the frequency table well. In the part (b), the concept of mode and mean was well done using the frequency table.

However candidates could not provide evidence of finding the median.