MATHEMATICS

1. GENERAL COMMENTS

The standard of the paper compared favourably with that of previous year.

2. PERFORMANCE OF CANDIDATES

Candidates showed marked improvement in performance over the previous years.

3. SUMMARY OF CANDIDATES' STRENGTHS

Candidates' performance was commendable in the following areas:

(1) Construction of triangles,
(2) Calculating of angles meant for each sector,
(3) Constructing a frequency distribution table,
(4) Transformation.

4. SUMMARY OF CANDIDATES' WEAKNESSES

(1) Writing figures in the standard form,
(2) Constructing perpendicular bisectors of lines,
(3) Arranging fractions in ascending order of magnitude,
(4) Writing answers to questions involving currency to two decimal places.

5. SUGGESTED REMEDIES FOR WEAKNESSES

Students should be given adequate preparation in the form of frequent exercises to be marked by teachers, and the students mistakes made known to them by taking them through their mistakes.

6. DETAILED COMMENTS

Question 1

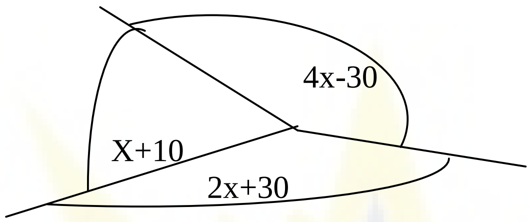
(a) Evaluate $\frac{0.035 \times 1.02}{0.00015}$ leaving the answer in standard form.

(b) An amount of GH¢4,200.00 was shared between Aba and Kwame. If Aba had 5/7 of the amount,

(i) how much did Kwame receive?

(ii) what percentage of Aba's share did Kwame receive?

(c) Find the value of *x* in the diagram below.



(a) Most candidates did not attempt this question, however, those who attempted it could not arrive at the correct answer. They were expected to change both the numerator and denominator to standard form. They were then to simplify it and leave their answers in the simplest standard form, but candidates could not write the answer in the standard form.

(b) (i) This question was fairly answered by those who attempted it. Candidates were able to calculate Kwame's share out of the total amount of GH¢4,200.00 which is GH¢1,200.00.

(ii) Candidates were not able to subtract Kwame's share from the total share of GH¢4,200.00 to obtain Aba's share. Kwame's percentage of Aba's share was to be found by taking the ratio of Kwame's share to Aba's share and multiply by 100 as was required of them but most of the candidates could not answer this correctly.

(c) Most of the candidates were able to sum all the angles and equate it to 360^{o}. They were then able to solve for the value of *x* by going through the normal arithmetic procedures.

2. (a) A car consumes a gallon of petrol for every 30 km drive. The driver of the car set out on a journey of 420 km with 10 gallons of petrol in the fuel tank.

(i) How many more gallons of petrol will be needed to complete the Journey?

(ii) Find the cost of the petrol used for the journey of 420 km if a gallon of petrol cost GH¢5.50.

(b) The average number of spectators at a football competition for the first five days was 3,144. The attendance on the sixth day was 3,990. Find the

(i) total attendance on the first five days.
(ii) average atendance for 6 days.

(c) The area enclosed by a square garden is 121 m^2. What is the distance around the garden?

Very few candidates attempted this question and they performed creditably well.

(a) Most of the candidates were able to find the total number of gallons needed to cover the whole journey of 420 km by dividing 420 km by 30 km. This gave 14 gallons.

(i) Since 10 gallons of fuel was in the fuel tank, the extra gallons of petrol needed was calculated by substracting 10 gallons from 14 gallons.

(ii) The total cost of fuel used was found by multiplying the cost of a gallon i.e GH¢5.50 by 14 to arrive at the correct answer.

(b) (i) To calculate the total attendance for the first five days, candidates were expected to multiply the average attendance of 3,144 by 5.

(ii) To find the average attendance for the six days, candidates were ex-pected to add the attendance on the sixth day to the total attendance for the first five days to obtain the ground total for the six days. Candidates were then to divide this grand total by six to find the average attendance for the six days. Most of the candidates who attended it were able to find the average attendance for the six days.

(c) Most candidates lacked understanding in solving this question and only a few of those who attempted the question, arrived at the correct answer.

Candidates could not find the square root of 121 cm^2 to give the length or a side of the square. The distance round the square is then calculated by multiplying the calculated length by 4.

3. (a) The table below shows the number of students who scored more than 80% in the listed subjects.

Subject	**No. of Students**
Biology	**26**
Physics	**30**
Chemistry	**32**
French	**38**
Geography	**24**
History	**30**

(i) Draw a pie chart for the distribution,

(ii) What is the probability that a student chosen at random from the distribution, offers Chemistry?

(b) A woman bought 210 oranges for GH¢7.50. She sold all of them at 3 for 15 Gp. Find the

(i) total selling price of the oranges;

(ii) percentage profit.

(a) Candidates did not find it difficult in calculating the sectorial angles since this question was very popular among them. The only problem that most candidates faced was the drawing of the pie chart. Most candidates drew pie charts without a fixed centre and therefore lost marks.

The probability that a candidate offered chemistry was found by dividing the number of candidates who offered chemistry by the total number of students who offered all the subjects and reduce the answer to its lowest forms. Most candidates lost marks because they could not reduce their answers to the lowest form.

(b) Candidates who attempted this question had a little problem in finding the selling price. Candidates were expected to divide 210 by 3 and multiply the result by 15 Gp to get the selling price. Subtracting the cost price from the selling price, the profit could be found . Profit percent is also found by taking the ratio of the profit to the cost price and multiply by 100.

4. The marks scored by some students in a Mathematics test are as follows:

3	**3**	**5**	**6**	**3**	**4**	**7**	**8**	**3**	**4**
5	**4**	**7**	**4**	**3**	**7**	**4**	**6**	**4**	**8**
4	**5**	**6**	**3**	**8**	**4**	**5**	**6**	**4**	**5**

(a) Construct a frequency distribution table for the scores.

(b) Using the table, find for the distribution, the

(i) mode;

(ii) mean, correct to one decimal place;

(iii) median.

Candidates showed appreciable knowledge of the concept of constructing a frequency distribution table.

Candidates were able to construct a frequency distribution table by tallying to find the frequencies for the numbers 3, 4, 5, 6, 7 and 8. Having found the frequencies, candidates were also able to find the product of the above numbers and their corresponding frequencies, sum these products up and divide by the total frequency to find the mean.

To find the mode, candidates were expected to write down the numbers in ascending or descending order and find the mean of the two middle numbers. Some candidates had difficulty because they could not arrange the numbers as required of them.

.5. (a) (i) **Find the Least Common Multiple (L.C.M) of 9, 18 and 16.**

(ii) **Arrange** $\frac{8}{9}$ **,** $\frac{7}{18}$ **and** $\frac{10}{16}$ **in ascending order of magnitude.**

(b) **Using a ruler and a pair of compasses only,**

(i) **construct a triangle PQR with length PQ = 10cm, angles QPR = 45º and PQR = 60º.**

(ii) **construct the perpendicular bisectors of PR and RQ to meet at *T*.**

(iii) **measure the length of TP.**

(a) (i) Some of the candidates who attempted this question could not actually come out with the least common multiple. There were a lot of approaches candidates could have adopted but the easiest one was to list the multiples of 9, 18, and 16 to obtain a common multiple. Candidates were then to pick the least of these multiples to be the LCM. Performance of candidates' average in answering this question

(ii) Most of them could not arrange the fractions in ascending order by using the LCM of 9, 18 and 16. To arrange the fractions in ascending order , candidates were expected to multiply each of the fractions by the LCM of 9, 18 and 16 or multiply the fractions by a constant number of their choice. Having multiplied by the LCM, candidates could see the order of magnitude and then arrange the fractions starting from the smallest to the greatest or highest. Most of the candidates failed to recognize this.

(b) The construction question was very popular among the candidates. Most candidates found the question very easy and did the construction very well.

Some candidates however bisected angle PRQ instead of bisecting lines PR and RQ. They therefore, located *T* wrongly and this affected the length of TP.

6. (a) (i) **Using a scale of 2 cm to 1 unit on both axes, draw two perpendicular axes 0*x* and 0*y* on a graph sheet.**

(ii) **Mark on the same graph sheet, the x-axis from -5 to 5 and y-axis from -6 to 6.**

(iii) **Plot the points P(4,2), Q(2,5) and R(2,2). Join the points P, Q, R to form triangle PQR.**

(iv) **Using the x-axis as a mirror line, draw the image $P_1Q_1R_1$ of the triangle PQR such that $P \rightarrow P_1$, $Q \rightarrow Q_{1,}$ $R \rightarrow R_{1.}$**

(v) **Write down the coordinates of $P_{1,}Q_1$ and $_1$.**

(vi) **Translate triangle PQR by the vector $\begin{pmatrix} -1 \\ -1 \end{pmatrix}$**

Such that $R \rightarrow R_2$ $P \rightarrow P_2$ $Q \rightarrow Q_2$,

(vii) **Label the vertices of triangle $P_2Q_2R_{2.}$.**

This question was very popular among the candidates and those candidates who attempted it performed very well. They drew the triangles correctly and indicated the co-ordinates at the various vertices. Candidates were able to translate triangle PQR and labelled the vertices $P_2Q_2R_2$ correctly.