REGISTRATION CENTRE NUMBER		CENTRE NAME	
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CANDIDATE IDENTIFICATION NUMBER		SUBJECT CODE 0570	PAGE NUMBER 2

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CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD
ORDINARY LEVEL EXAMINATION

SUBJECT TITLE **MATHEMATICS**	SUBJECT CODE 0570	PAPER NUMBER 2

EXAMINATION DATE: **JUNE 2016**

FOR EXAMINERS' USE ONLY	*SCORE*
MARKED BY:..	
Signature: .... Date:	
Checked by:	
Signature: .... Date:	

Two and Half hours

Enter the information required in the boxes

This paper is arranged in two sections, **A** and **B**. Answer ALL questions in Sections A and B.

Section A: Answer ALL the questions in the spaces provided. The mark allocation for each question is indicated.

Section B: All questions in Section B carry equal marks.

You are reminded of the necessity for good English and orderly presentation in your answers.

In calculations, you are advised to show all the steps in your working, giving your answer at each stage.

Calculators are allowed.

_____ Turn Over

SECTION A

ANSWER ALL 15 QUESTIONS IN THIS SECTION

1. Express each of 24 and 30 as a product of its prime factors. (6 marks)

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Find   (a) the LCM of 24 and 30

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         (b) the HCF of 24 and 30

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2. Find the simple interest paid on a loan of 45,000 FCFA over 5years at 3 % per annum. (4 marks)

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3. Complete the following table, with T for true and F for false (4 marks)

P	$\sim P$	$\sim(\sim P)$
T		
T		

4. Given that $f(x) = 3x + 7$ and $fh(x) = 6x - 20$. Determine the function $h(x)$ (4 marks)

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5. In figure 1, TR and PR are tangents to the circle of centre O. Find the angles marked x and y. **(5 marks)**
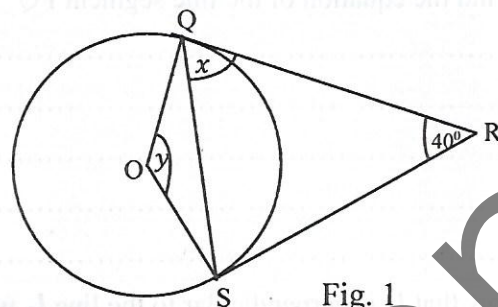

Fig. 1

6. Figure 2 is a kite on a rectangular table of sides 11 cm by 6 cm. Calculate the area of the shaded region. **(5 marks)**
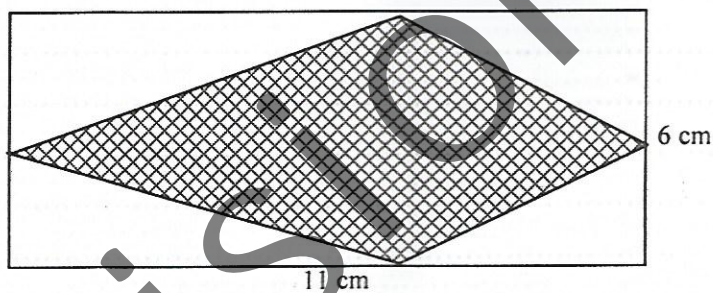

6 cm

11 cm

Fig. 2

7. The diagram shows the distance AB, across a lake. Find AB, giving your answer in cm to three significant figures. **(5 marks)**

50cm   B
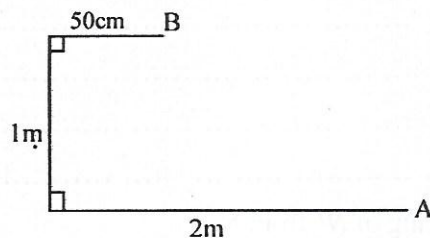
1m

2m   A

Fig. 3

Turn Over

8. Given that the line l_1 passes through the points P $(0, -2)$ and Q $(8, -4)$. **(6 marks)**

(a) Find the equation of the line segment PQ

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(b) Show that l_1 is perpendicular to the line l_2 with equation $y - 4x + 6 = 0$

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9. Solve the inequality $2x^2 + x - 6 < 0$ and represent your solution on a number line. **(5 marks)**

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10. An electric pole PN is such that PN = 12 m where P is the base and N is the top of the pole. At a given moment of the day, the shadow of the pole, $PN' = PN$. **(6 marks)**

Find
(a) the length NN', leaving your answer as a surd.

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(b) the bearing of N' from N.

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11. Given that $1 - sin\theta = \frac{2}{5}$. Find the value of $1 + cos\theta$ **(5 marks)**

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12. Given that $\overline{OP} = 2i - j$ and $\overline{OR} = 3i + 4j$. **(6 marks)**
Find
(a) $|\overline{PR}|$

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(b) Given that $\overline{OM} = 3\overline{OP} - \overline{OR}$, find $\overline{OM}$ and show that $\overline{OM}$ is perpendicular to the vector $\overline{OQ} = 7i + 3j$

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13. Given that the matrix $\begin{pmatrix} 4 & 2 \\ \frac{2}{a} & a \end{pmatrix}$ has no inverse. Find the value(s) of a. **(5 marks)**

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14. The point A (- 4, 1) is in the x – y plane. Find the image of A when it undergoes the following double

transformation. A reflection about the x – axis followed by the translation $\begin{pmatrix} 1 \\ 2 \end{pmatrix}$.

(5 marks)

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Gq/0570/2/C

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15. Given that 32 students went out to pick fruits and the number picked per student is shown below

5 7 5 3 1 4 5 4 3 2 1 3 4 5 7 6

8 4 3 1 5 3 5 7 3 2 4 2 6 5 2 2 (6 marks)

(a) State the mode(s)

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(b) Calculate the mean, to one decimal place

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(c) Find the upper quartile of the data.

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SECTION B

ANSWER ALL FOUR QUESTIONS IN THIS SECTION. EACH QUESTION CARRIES 15 MARKS

1. (i) A man left a sum of money to be shared among his three children, Alima, Mojoko, and Che such that, Alima gets ¼ of the sum, Mojoko gets 4/9 of the remainder and Che gets the rest:

(a) Determine the fraction Mojoko gets from the amount.

Given that Mojoko gets 32,000FCFA

Find

(b) The amount that was left to be shared

(c) The amount of money Alima received.

(ii) Given a polynomial f(x), where

$$f(x) = x^3 + px^2 - x - 2 \text{ and } (x - 1) \text{ is a factor of } f(x)$$

Find

(a) The value of p

(b) The other factors

Solve

(c) $x^3 + px^2 - x - 2 = 0$

2. (i) In a Mini Agro Pastoral show in one Region in Cameroon, 60 farmers can either exhibit the food crops, Cassava(C), Plantains (P) or Yams (Y). The Venn diagram in figure 1 shows the number of farmers and the crop type on exhibition.
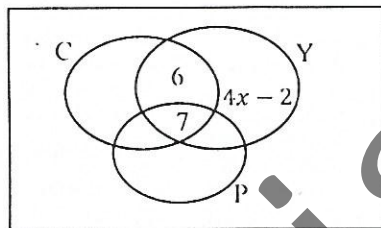
Fig: 1

Given that $n(Y) = 27$, 8 farmers exhibit only plantains and that 5 farmers exhibit only cassava, determine

(a) The value of x

(b) How many farmers exhibit only cassava and plantains

(c) Find the number of farmers who exhibit cassava

(d) In ordinary English, describe the set $P' \cap C \cap Y$

(ii) Given two functions f and g defined as

$$f : x \mapsto 1 - x^2, x \in R$$

$$g : x \mapsto f(x) + 1 + 2x + x^2, x \in R$$

Find

(a) $g(x)$

(b) $g^{-1}(x)$

(c) $f(3)$

_____ Turn Over

3. (i) Using the scale of 2cm to 1 unit for x-axis and 1 cm to 1 unit for the y-axis, draw the graph of the functions

$f(x) = x^2 - 2x$ and $g(x) = x + 1$ for $-2 \leq x \leq 4$.

From the graph, write down the values of x at the points of intersection of both graphs.

(ii) Use only a pencil, ruler and compasses in this question.

(a) Construct an equilateral triangle PQR with each side 6 cm

(b) Indicate on the triangle PQR the lines of symmetry and label as X the point where the lines of symmetry meet.

(c) With X as centre, draw a circle passing through P, Q and R

(d) State the special name for this circle.

4. (i) In a school of 30 students, 9 come from mission schools, 13 come from government schools and the rest from private schools. Two students are selected at random from the class.

Using a probability tree or otherwise, find the probability that the two selected students will come from

(a) Private schools

(b) Either mission or government schools

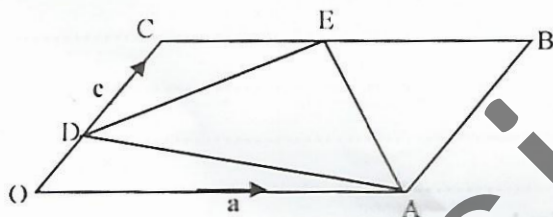(c) One from mission and the other from a government school.

(ii)

Fig: 2

In figure 2, above, $\overline{OA} = a, \overline{OC} = c$ and $\overline{DC} = \dfrac{2}{3}\overline{OC}$, where E is the midpoint of $\overline{BC}$

Find

(a) $\overline{BC}$

(b) $\overline{AE}$

(c) $\overline{ED}$