REGISTRATION CENTRE NUMBER	CENTRE NAME
CANDIDATE'S FULL NAMES	
CANDIDATE IDENTIFICATION NUMBER	SUBJECT CODE **0570** / PAPER NUMBER **2**

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GENERAL CERTIFICATE OF EDUCATION (GCE) BOARD
ORDINARY LEVEL EXAMINATION

SUBJECT TITLE	SUBJECT CODE	PAPER NUMBER
MATHEMATICS	**0570**	**2**
	EXAMINATION DATE: **JUNE 2021**	

Two and a Half hours

Enter the information required in the boxes above.
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

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	SCORE
Marked by: ----------	
Signature:---------- *Date* ----------	
Checked by: ----------	
Signature:---------- *Date* ----------	

SECTION A

ANSWER ALL 15 QUESTIONS IN THIS SECTION

1. During an auction sale, a shop reduced the prices of its articles by 10%. Calculate the selling price of an article originally priced at 43000 FCFA

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(5 marks)

2. Solve for x in the equation $\frac{5}{7x-1}=\frac{4}{9}$

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(4 marks)

3. Given an equation of a straight line $\frac{x}{2}+\frac{y}{4}=1$

Determine

(a) The gradient of the line

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.....

(b) The coordinates of the point where the line meets the y-axis

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.....

(5 marks)

4. Given the function $f(x) = x^2 - 4x + 3$.

Find:

(a) the factors of $f(x)$

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.....

Hence:

(b) the roots of $f(x)$

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(5 marks)

5. Draw the truth table for the compound statement $\sim(p \wedge q)$

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(5 marks)

6.

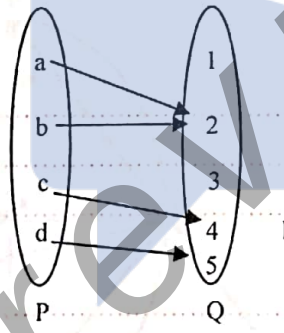

Figure 1

Figure 1 shows a relation $P \rightarrow Q$

(a) State whether this is a one – one, one – many or many – one relation

.....

.....

(b) Write down the Cartesian product P x Q of the sets P and Q, for which the relation is true

.....

.....

(c) State the range of the relation

.....

(6 marks)

7. Given the matrix $M = \begin{pmatrix} 1 & 2 \\ x-1 & x \end{pmatrix}$

Find:

(a) the transpose M^T,

.....

.....

.....

(b) the value of x for which M= M^T

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(c) using this value of x, find M^2

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(6 marks)

8. Given that y is directly proportional to x and that $y = 24$ when $x = 3$,

Find:

(a) an equation in terms of x and y

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.....

(b) the value of y when x = 7

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(6 marks)

9. An interior angle of a regular polygon is twice its exterior angle.
Calculate

(a) the value of an exterior angle

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.....

(b) the number of sides of the polygon

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.....

(c) name the polygon.

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(6 marl

10. Solve the inequality $-2(5-x) \leq 4-5x$ and represent your solution on a real number line

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(5 mark

11. Figure 2 is a circle with centre O and SR is a tangent. Given that angle $OPQ = 24^0$.

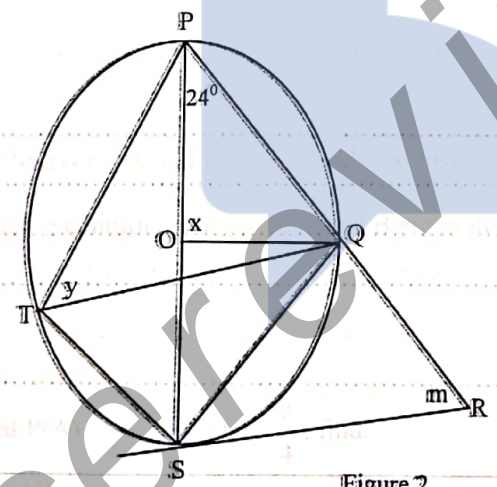

Figure 2

Find the value of:

.....

(a) angle x.....

.....

(b) angle y.....

.....

(c) angle m.....

.....

(6 marks)

12. Given the vectors $OP = (a+2)\mathrm{i} + \mathrm{j}$ and $OQ = 2ai + 5j$, where a is a constant,

(a) Find **PQ** in terms of a

.....

.....

.....

(b) Given that **PQ**$= 3i + 4j$, find the value of a

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.....

.....

(c) Find $|PQ|$

.....

.....

(6 marks)

13. (a) Draw a network with 4 region and 4 vertices

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(b) From the network, find the number of arcs

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(6 marks)

14.

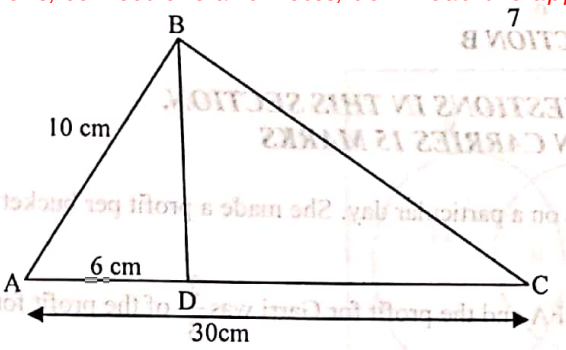

Figure 3

In figure3, ABC is a triangle in which BD is a perpendicular to AC. Given that AC = 30cm, AB = 10cm and AD = 6cm.

Find:

(a) BD

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.....

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.....

(b) DC

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.....

.....

.....

(c) the angle DCB

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(7 marks)

15. Given that the events A and B are mutually exclusive

(a) State the condition for which A and B are mutually exclusive

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.....

Hence:

Given that $P(A) = \frac{1}{6}$ and $P(B) = \frac{3}{4}$, find:

(b) $P(A \cup B)$

.....

.....

(c) $P(A^c)$

.....

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(5 marks)

SECTION B

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

1. Miriam sold Rice, Beans, Corn and Garri in buckets on a particular day. She made a profit per bucket for each item sold as follows:

Rice: 600 FCFA, Beans: 500 FCFA, Corn: 300 FCFA and the profit for Garri was $\frac{2}{3}$ of the profit for Rice.

Find

(a) the profit per bucket of Garri on that day.

(b) the ratio of the profit per bucket of Rice and Garri sold.

(c) the total profit she made on that day from selling, 4 buckets of Rice, and 2 buckets of Beans, 5 buckets of Corn and 4 buckets of Garri.

She used $\frac{2}{5}$ of her profit for to buy fish;

(d) Calculate the amount spent to buy fish.

She used $\frac{1}{13}$ of the remainder of her profit for her taxi fare and saved the rest;

Find:

(e) her taxi fare

(f) the amount saved.

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2. (i) Given the function $f(x) = 5 + 4x - x^2$,

(a) Construct a table of values of y against x for $-2 \le x \le 6$

Taking 2cm to represent I unit on the x-axis and 1cm to represent 1 unit on the y-axis:

(b) Draw the graph of y = f(x).

From your graph:

(c) Determine the value(s) of x for which $x^2 - 4x - 5 = 0$

(d) Find the gradient of the curve at the point (4, 5). Giving your answer to 1 decimal place.

(ii) A function, f, is defined on $\mathcal{R}$, the set of real numbers by

$f(x) = x^3 + 2x^2 + ax + b$. When $f(x)$ is divided by $(x+1)$, the remainder is 0.

Given that $(x-2)$ is a factor of $f(x)$,

(a) Find the values of a and b

(b) Factorize $f(x)$ completely

3.

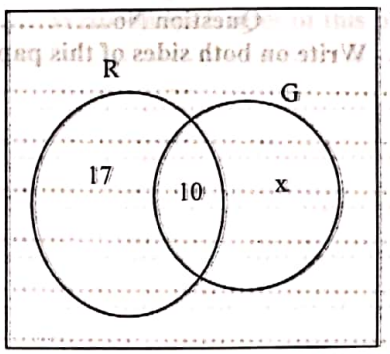

Figure 1

(i) Figure1 is a Venn diagram showing 50 students in boarding school who ate Rice (R) and Garri (G) for lunch on a particular day. All the students ate either Rice or Garri or both.

Find

(a) the number of students who ate Rice

(b) the value of x

Describe:

(c) In ordinary English the region with the value 17.

In set notation

(d) the number of students who ate both Rice and Garri

(e) the region with no student.

(ii) Using ruler, pencil and a pair of compasses only,

(a) Construct a triangle PQR in which PQ=10cm, QR=9cm and PR=7cm.

(b) Construct the bisectors of angles PQR and PRQ.

(c) Mark the point M, where the bisectors meet.

(d) Construct a circle with centre M such that PQ, QR and PR are tangents to the circle

(e) Measure and write down the radius

4. The table below shows the results of candidates who wrote the ordinary level examination in a certain school

No of subjects passed	0	1	2	3	4	5	6	7	8	9	10	11
No of candidates passed	3	4	6	10	21	20	10	6	8	7	3	2

(a) State the mode

Find:

(b) the total number of candidates that sat for the examination.

(c) the median

(d) the mean number of subjects passed, giving your answer to the nearest whole number

Given that a candidate who passed in four or more subjects has passed the examination,

Find:

(e) the number of candidates who passed the examination

(f) the probability that a candidate chosen at random passed the examination

(g) Calculate the percentage pass to one decimal place

Question No.....
Write on both sides of this paper

Do not write on this margin