

REGISTRATION CENTRE NUMBER		CENTRE NAME	
CANDIDATE'S NAME			
CANDIDATE IDENTIFICATION NUMBER		SUBJECT CODE 0570	PAPER NUMBER 2
FOR OFFICIAL USE ONLY (Candidate Random Code) →			
GENERAL CERTIFICATE OF EDUCATION BOARD ORDINARY LEVEL EXAMINATION			
SUBJECT TITLE MATHEMATICS		SUBJECT CODE 0570	PAPER NUMBER 2
EXAMINATION DATE: JUNE 2023			
Two and a Half hours		Question No	MARKS
Enter the information required in the boxes above. The 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			
<i>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</i>			
Non-programmable calculators are allowed			
		TOTAL	

<i>FOR EXAMINERS' USE ONLY</i>	
Marked by: -----	<u>SCORE</u>
Signature:----- Date -----	
Checked by: -----	
Signature:----- Date -----	

Turn Over

SECTION A**ANSWER ALL 10 QUESTIONS IN THIS SECTION**1. Evaluate: $15 - 4 \times 2 + 3$

.....
.....
.....
(4 marks)

2. Solve the simultaneous equations given by $2m + 4n = 0$ and $3m - 2n = 16$

.....
.....
.....
.....
(5 marks)

3. Given the statements p and q as p : He is tall q : He is handsome

Write in ordinary English

(a) $\sim p$ (b) $p \vee q$ (c) $p \wedge q$

.....
.....
.....
.....
(4 marks)

4. Given that figure 1 represents the height PR of a boy 1.8 m and his shadow RQ, 2.4m long on a flat horizontal ground.

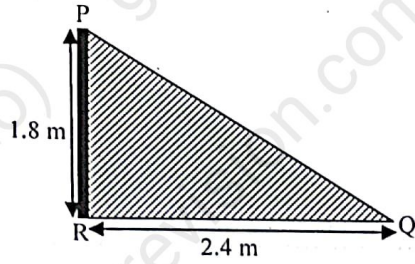


Figure 1

(a) Find the distance PQ

.....

.....

.....

.....

.....

(b) Calculate the angle of elevation of the sun from Q to the tip of the boy's head P, leaving your answer to the nearest degree

.....

.....

.....

.....

.....

(5 marks)

5. A card is drawn at random from a pack of 52 cards. Calculate the probability that the card drawn is

(a) an Ace

.....

.....

.....

(b) a Spade

.....

.....

.....

.....

(4 marks)

Turn Over

6. Given the network in figure 2

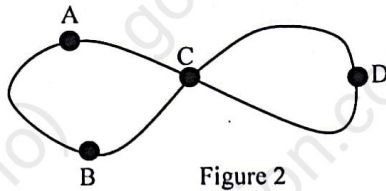


Figure 2

State the number of

(a) arcs

.....

(b) odd nodes

.....

(c) nodes.

.....

(5 marks)

7. Figure 3 shows a circle with radius, $r = 3\frac{1}{2}$ cm, inscribed in a rectangle PQRS.

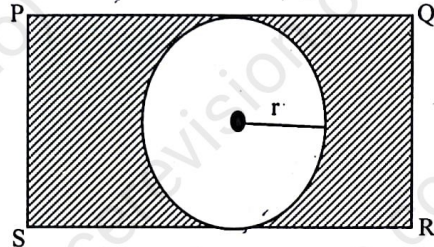


Figure 3

Given that $PQ = 9$ cm and $QR = 7$ cm, taking π as $\frac{22}{7}$,

Find the area of:

(a) the rectangle

.....

(b) the circle

.....

(c) the shaded region

.....

.....

.....

(5 marks)

8. In figure 4, AC is the diameter of a circle with centre O.

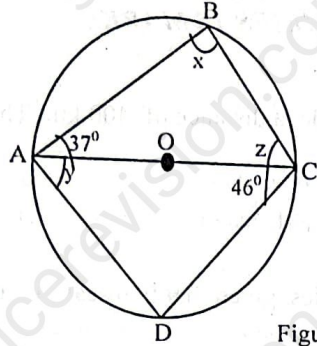


Figure 4

Given that angle $BAC = 37^\circ$ and angle $ACD = 46^\circ$.

Find the value of:

(a) angle x

.....

(b) angle y

.....

(c) angle DCB

.....

(5 marks)

9. Given that $\overline{PQ} = 3\mathbf{i} + 5\mathbf{j}$.

Find:

(a) the magnitude of \overline{PQ} , correct to one decimal place,

.....

(b) the direction of \overline{PQ} , to the nearest degree,

.....

(4 marks)

10. Given that 6, x and 10 are three consecutive terms of an Arithmetic progression, find:

(a) the value of x

.....

(b) the common difference of the progression

.....

(4 marks)

Turn Over

SECTION B

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

1. (i) A 70 seater passenger bus leaves Bamenda for Yaoundé, a distance of 400 km. The driver pays 500FCFA at each toll gate located after every 150 km.

Find,

- the number of toll gates between the two towns
- the total amount paid for the toll gates
- the actual number of passengers the bus carries, given that two seats are reserved for the driver and the conductor.

The transport fare is 5,000 FCFA per passenger and the bus uses 100,000 FCFA for fuel.

Calculate

- the total amount collected for the fare
- the balance after all the expenditures are made.

(9 marks)

- (ii) Given that the matrices $P = \begin{pmatrix} 3 & 2 \\ b+1 & 0 \end{pmatrix}$ and $Q = \begin{pmatrix} a-1 & 2 \\ 4 & 0 \end{pmatrix}$ are equal,

- find the values of a and b .

Hence,

- find $P+Q$

(6 marks)

2. (i) Given the functions f and g , defined as $f(x) = x - 3, x \in \mathbb{R}$ and $g(x) = 2x + 1, x \in \mathbb{R}$, find,

- $f(4)$
- $fg(x)$
- $g^{-1}(x)$

(6 marks)

- (ii) Figure 1 is a Venn diagram representing the number of students in a certain class of 30.

$P = \{\text{Students studying Physics}\}$

$C = \{\text{Students studying Chemistry}\}$

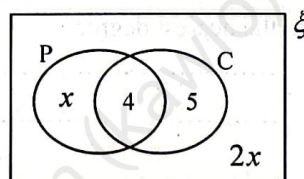


Figure 1

- Write, in set notation, the total number of students in the class.
- Write down an equation in terms of x .
- Hence, find the value of x .
- Find, how many students study neither Physics nor Chemistry.
- Determine the number of students studying one subject only.

(9 marks)

3. (i) The table below shows the cumulative frequency of the marks obtained by 36 students

Marks	10	20	30	40	50	60	70	80	90	100
Cum. Freq.	1	4	8	16	24	29	32	34	35	36

- (a) Calculate the number of students who scored a mark between 61 and 70 inclusive.
 (b) Using a scale of 1 cm to represent 10 marks and 2 cm to represent 5 students, draw a cumulative frequency curve.
 (c) Using your graph, find the median mark.
 (d) Calculate the probability that a student chosen at random will have a mark greater than 70.

(9 marks)

- (ii) Using a ruler, pencil and a pair of compasses only and showing all construction lines,

- (a) construct triangle ABC, where $AB = 10$ cm, $AC = 8$ cm and $BC = 6$ cm
 (b) construct the perpendicular from C to AB
 (c) measure and write down the length of the perpendicular.

(6 marks)

4. (i) Given two functions f and g such that $f(x) = -x^2 + 5x - 4$ and $g(x) = x$, and taking a scale of 2 cm for 1 unit on both axes, for $0 \leq x \leq 5$, draw the graphs of $f(x)$ and $g(x)$.

From your graphs,

- (a) find the point(s) of intersection of the two graphs,
 (b) shade the region enclosed by the graph of $f(x)$ and the x -axis.

(11 marks)

- (ii) Figure 2 is a vector diagram with position vectors $\overrightarrow{OP} = \vec{p}$ and $\overrightarrow{OQ} = \vec{q}$. M is on PQ such that $PM : MQ = 2 : 1$

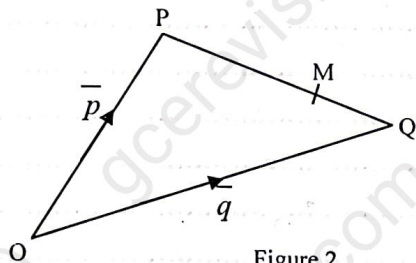


Figure 2

Express, in terms of \vec{p} and \vec{q} , the vectors

- (a) \overrightarrow{PQ}
 (b) \overrightarrow{PM}

(4 marks)

Question No. _____

