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Examination Answer Books

Candidate's Exam Number: _____

Book No.

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Complete, fold and seal
(see note 1 below)

59%

SURNAME: Goddard

FORENAME(S): George

Programme Title: _____

Year/Level/Stage: _____

Examination Paper Title: _____

Examination Paper Ref No.: _____

Desk Letter/Number: _____

Date: ____ / ____ / 20____

Time: _____ am/pm

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Instructions to Candidates:

- Please give the information requested above and enter your name in the space provided at the top right of this page. If your answers are to be marked under a scheme whereby the examiners will not know your identity, fold over and seal down the top right-hand corner of the page (using the gummed label provided) in order to conceal your name.
- Commence each answer on a fresh page.
- Do all rough work in the answer book and cross through it.
- No part of this booklet is to be torn out.
- Supplementary answer books if used must:-
 - bear the candidate's name (concealed, where appropriate), reference number and paper title;
 - be numbered consecutively;
 - be fastened together by the tags available from the invigilator.
- Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the exam room.
- Your answers must be legibly written **IN INK**. The Examiners can either ignore illegible script or have it typed and the expense of typing charged to the candidate.

Summary of Marks

Question Numbers Answered	1st Examiner	2nd Examiner (optional)	3rd Examiner (optional)
2	31		
1	6 + 10 = 16		
	47		
TOTAL			
RESULT			

$$2a \quad 2x + 4 = -7$$

$$2x = -11$$

$$x = -5.5$$

$$y^2 = 49$$

$$y = \sqrt{49}$$

$$y = 7 \pm$$

$$\frac{2z-1}{5} = \frac{z}{3}$$

$$6z - 3 = 5z$$

$$6z = 5z + 3$$

$$z = 3$$

$$x = -5.5$$

$$y = 7$$

$$z = 3$$

2

1

2

2 b

$$\begin{vmatrix} x & 3 & -2 \\ 5 & x & -4 \\ 3 & -2 & 5 \end{vmatrix} = 0$$

$$x(5x - 8) - 3(25 + 12) - 2(-10 - 3x)$$

$$5x^2 - 8x - 75 - 36 + 20 + 6x$$

$$5x^2 - 2x - 91 = 0$$

Using the quadratic formula

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

where $a = 1$ $b = -2$ $c = -91$

$$\frac{-(-2) \pm \sqrt{(-2)^2 - (4 \times 1 \times -91)}}{2 \times 1}$$

$$\frac{2 \pm \sqrt{4 - (-364)}}{2}$$

$$\frac{1 \pm 2\sqrt{23}}{1}$$

$$\frac{2 \pm \sqrt{+368}}{2}$$

∴ the roots of the quadratic equation

$$\text{are: } 10.6$$

$$- 8.6$$

20
i $\begin{pmatrix} -1 \\ -3 \\ -5 \end{pmatrix} \times \begin{pmatrix} 3 & -2 \\ 5 & -4 \end{pmatrix}$
3 x 1 2 x 2

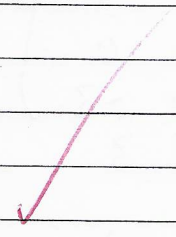
cant be done



1

ii $P^2 \begin{pmatrix} -1 \\ -3 \\ -5 \end{pmatrix} \times \begin{pmatrix} -1 \\ -3 \\ -5 \end{pmatrix}$
3 x 1 3 x 1

cant be done



1

iii $Q^2 \begin{pmatrix} 3 & -2 \\ 5 & -4 \end{pmatrix} \times \begin{pmatrix} 3 & -2 \\ 5 & -4 \end{pmatrix}$
2 x 2 2 x 2

$\begin{pmatrix} -1 & 2 \\ -5 & 6 \end{pmatrix}$

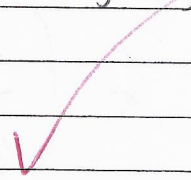
15
-10 -10
9 -6 -1
-1 -8 -6
H

Don't

2

iv $R^2 \begin{pmatrix} 2 & -1 & 6 \\ 0 & 3 & 0 \\ 5 & -1 & -3 \end{pmatrix} \times \begin{pmatrix} 2 & -1 & 6 \\ 0 & 3 & 0 \\ 5 & -1 & -3 \end{pmatrix}$
3 x 3 3 x 3

$\begin{pmatrix} 34 & -11 & -6 \\ 0 & 9 & 0 \\ -5 & -5 & 39 \end{pmatrix}$



3

2CV PR

$$\begin{pmatrix} -1 \\ -3 \\ -5 \end{pmatrix} \times \begin{pmatrix} 2 & -1 & 6 \\ 0 & 3 & 0 \\ 5 & -1 & -3 \end{pmatrix}$$

$3 \times 1 \quad 3 \times 3$

$$\begin{array}{r} -2 \\ 3 \end{array}$$

can't be done

vi

RP

$$\begin{pmatrix} 2 & -1 & 6 \\ 0 & 3 & 0 \\ 5 & -1 & -3 \end{pmatrix} \times \begin{pmatrix} -1 \\ -3 \\ -5 \end{pmatrix}$$

$3 \times 3 \quad 3 \times 1$

$$\begin{array}{r} -5 \\ +3 \\ +15 \end{array}$$

$$\begin{pmatrix} -29 \\ -9 \\ 13 \end{pmatrix}$$

vii

P^T

$$(-1 -3 -5)$$

viii

Q^T

$$\begin{pmatrix} 3 & 5 \\ -2 & -4 \end{pmatrix}$$

ix

R^T

$$\begin{pmatrix} 2 & 0 & 5 \\ -1 & 3 & -1 \\ 6 & 0 & -3 \end{pmatrix}$$

$$\begin{array}{r} -7 \\ -25 \\ 7 \\ +3 \\ -30 \end{array}$$

$$P^T R^T (-1 -3 -5) \times \begin{pmatrix} 2 & 0 & 5 \\ -1 & 3 & -1 \\ 6 & 0 & -3 \end{pmatrix}$$

$1 \times 3 \quad 3 \times 3$

$$\begin{array}{r} -5 \\ +3 \\ +15 \end{array}$$

$$(-27)$$

$$(-29 -9 13)$$

2d

$$\begin{aligned}
 x + 2y + 3z &= -5 \\
 3x + y - 3z &= 4 \\
 -3x + 4y + 7z &= -7
 \end{aligned}$$

$$\begin{pmatrix} 1 & 2 & 3 \\ 3 & 1 & -3 \\ -3 & 4 & 7 \end{pmatrix} \begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} -5 \\ 4 \\ -7 \end{pmatrix}$$

A1

$$\begin{aligned}
 1(7-12) - 2(21-9) + 3(12-3) \\
 1(19) - 2(12) + 3(15) \\
 19 - 24 + 45 \\
 = 40
 \end{aligned}$$

2

$$A_1 \begin{pmatrix} -5 & 2 & 3 \\ 4 & 1 & -3 \\ -7 & 4 & 7 \end{pmatrix}$$

$$\begin{aligned}
 -5(7-21) - 2(28-21) + 3(16+7) \\
 -5(-14) - 2(7) + 3(23) \\
 70 - 14 + 69 \\
 = 125
 \end{aligned}$$

X

$$A_2 \begin{pmatrix} 1 & -5 & 3 \\ 3 & 4 & -3 \\ -3 & -7 & 7 \end{pmatrix}$$

$$\begin{aligned}
 1(28-21) + 5(21-9) + 3(-21+12) \\
 1(7) + 5(12) + 3(-9) \\
 7 + 60 - 27 \\
 = 40
 \end{aligned}$$

2

2 d

$$A_3 \begin{pmatrix} 1 & 2 & -5 \\ 3 & 1 & 4 \\ -3 & 4 & -7 \end{pmatrix}$$

$$\begin{aligned} & 1(-7-12) - 2(-21+12) - 5(12-3) \\ & 1(-19) - 2(-9) - 5(9) \\ & -19 + 18 - 45 \\ & = -46 \end{aligned}$$

$$\frac{A_1}{A} = \frac{125}{40} = 3\frac{1}{8}$$

$$\frac{A_2}{A} = \frac{40}{40} = 1$$

$$\frac{A_3}{A} = \frac{-46}{40} = -1\frac{3}{20}$$

$$\therefore x = 3\frac{1}{8}$$

$$y = 1$$

$$z = -1\frac{3}{20}$$

(31)

i) $x^2 - 12x + 37 = 0$

using the quadratic equation

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

where $a = 1$

$$b = -12$$

$$c = 37$$

$$\frac{-(-12) \pm \sqrt{12^2 - 4 \times 1 \times 37}}{2 \times 1}$$

$$\frac{12 \pm \sqrt{144 - 148}}{2}$$

$$\frac{12 \pm \sqrt{4}}{2}$$

$$= 7$$

$$= 5$$

X

X

ii) $4 + 5j$

✓

Question No.

16i

$$\frac{p}{2} + \frac{q}{2}$$

$$\frac{-4 + 8j}{2} + \frac{2 + 6j}{2}$$

$$-2 + 8j + 6j$$

$$-2 + 14j$$

X

$$ii \quad (p+r)(p-r)$$

$$p+r = -4 + 8j + (-4) + 8j$$

$$p+r = -8 + 16j$$

X

$$p-r = -4 + 8j - (-4) + 8j$$

$$16j$$

X

$$(-8 + 16j)(16j)$$

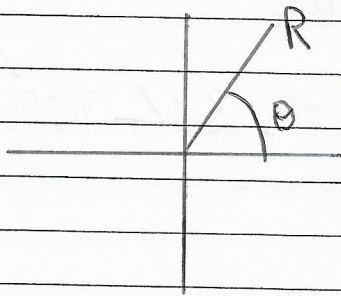
$$= -128j + 256j^2$$

$$\text{But } j^2 = -1$$

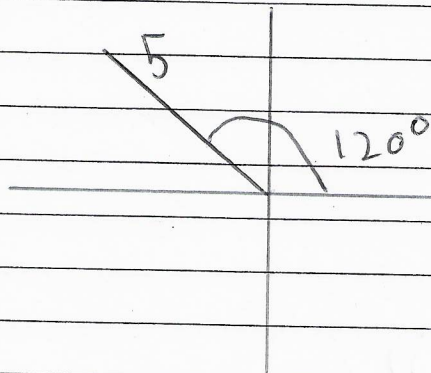
$$= -384$$

i) r is the Modulus of the Complex Number which is the length of the line on an argand diagram

θ is the angle at which r comes from on the argand diagram and comes from the positive horizontal axis see sketch 1



ii)



labelling

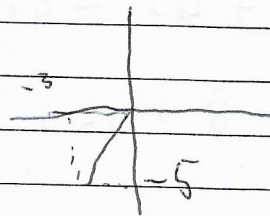
iii)

$$-3 - 5j$$

$$r = \sqrt{-3^2 + -5^2}$$

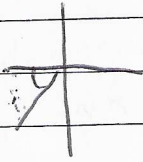
$$r = \sqrt{9 + 25}$$

$$= 5.83$$



1 c in

Toa



$$\tan \theta = \frac{-5}{-3}$$

$$\tan^{-1} \frac{-5}{-3} = 59.04$$

$$59.04 + 180 = 239.04$$

$$\therefore -3 - 5j \text{ in polar form} = 5.83 \angle 239.04$$

1 d

$$(2+j)^3$$

$$(2+j)(2+j)$$

$$4 + 2j + 2j + j^2$$

$$4 + 4j + j^2$$

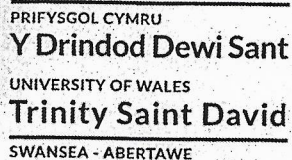
$$(4 + 4j + j^2)(2+j)$$

$$8 + 4j + 8j + 4j^2 + 2j^2 + j^3$$

$$8 + 12j + 6j^2 + j^3$$

X

2



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100

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UNIVERSITY OF THE PHILIPPINES

College of Arts and Letters

Department of English

English 101

Section 1

Student's Name

Section Number

Enrollment Number

Section Number

Section Number

Summary of Notes

Introduction to Literature

Literature is a form of communication that uses language to create a world of imagination. It is a way of seeing the world and of expressing our feelings about it. Literature is a reflection of the human condition and of the society in which we live. It is a mirror that shows us who we are and who we want to be.

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1 d $(2+j)^3$ must be in polar form

$$r = \sqrt{2^2 + 1^2}$$

$$r = \sqrt{5}$$

$$r = 2.24 \text{ or } \sqrt{5}$$

$$\theta = \frac{1}{2}$$

$$\tan \theta = \frac{1}{2}$$

$$\tan^{-1} \frac{1}{2} = \theta$$

$$\theta = 26.566$$

De Moivre's theorem

$$r^n (\cos n\theta + j \sin n\theta)$$

$$\sqrt{5}^3 (\cos 3 \times 26.566 + j \sin 3 \times 26.566)$$

$$\sqrt{5}^3 (0.179 + j 0.984)$$

$$2.01 + j 11.058$$

5

16iii

$$p^2 + q^2 + r^2$$

$$(-4 + 8j)(-4 + 8j)$$

$$16 - 32j - 32j + 64j^2$$

$$p^2 = 16 - 64j + 64j^2$$

$$q^2$$

$$(2 + 6j)(2 + 6j)$$

$$4 + 12j + 12j + 36j^2$$

$$4 + 24j + 36j^2$$

$$r^2 = (-1 - 3j)(-1 - 3j)$$

$$1 + 3j + 3j + 9j^2$$

$$1 + 6j + 9j^2$$

$$16 - 64j + 64j^2 + 4 + 24j + 36j^2 + 1 + 6j + 9j^2$$

$$= 21 - 34j + 109j^2$$

$$\frac{biv}{r}$$

$$\frac{2+6j}{-4+8j}$$

$$\frac{2+6j}{-4+8j} \quad \frac{4-8j}{4-8j} \quad \times$$

$$\checkmark \quad 2 \times P$$

$$2(-4+8j)$$

$$-8+16j \quad \checkmark$$

$$3 \times r$$

$$3(-1-3j)$$

$$-3-9j$$

$$4q$$

$$4(2+6j)$$

$$8+24j$$

$$P -4+8j \quad \times$$

Question No

[illegible]

Figure 1. A schematic diagram of the experimental setup. The subject is seated in a chair, viewing a screen displaying a target. The target is a horizontal line, and the subject is required to move a cursor to the target. The cursor is represented by a small circle on the screen. The subject's hand is positioned at the starting point, and the cursor is moved to the target. The distance between the starting point and the target is the reach distance. The subject is required to move the cursor to the target within a specified time limit. The time limit is determined by the target distance and the subject's movement speed. The subject is required to move the cursor to the target within a specified time limit. The time limit is determined by the target distance and the subject's movement speed.

Question No.

Examiner Only

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Question No.

Examiner Only

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Question No.

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Examiner Only

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Question No.

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