



SURNAME: Lumsden

FORENAME(S): Thomas

12 Pages

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold over and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners can either ignore illegible script or have it typed and the expense of typing charged to the candidate.
4. Write your answers in ink.
5. Begin each answer on a fresh page. Do all rough work in the answer book and cross it through.
6. No part of this book is to be torn out; it must be handed in complete.
7. If more books than one are used, fasten them together using the tags available from the invigilator(s).
8. **Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the examination venue.**

1	Student Number	2427105
2	Title of Examination Paper	OME chemistry
3	Module Code	ACDB4011
4	Date and Time of Examination	6/05/25
5	Examination Venue	Calport bld 88
6	Seat Number	5
7	Number of Answer Books handed in	1

[illegible]

1a° ~~false~~

b° FALSE ✓

c° ~~TRUE~~

d° ~~FALSE~~

e° FALSE ✓

f° $\overset{50}{A \rightarrow 2B}$ $\overset{-50}{2C \rightarrow B}$ $A \rightarrow 2C$ True ✓

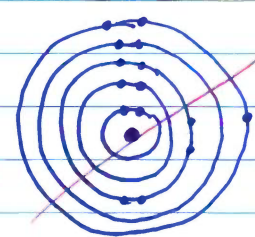
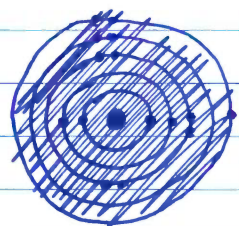
g° ~~TRUE~~

h° FALSE ✓

i) ~~FALSE~~

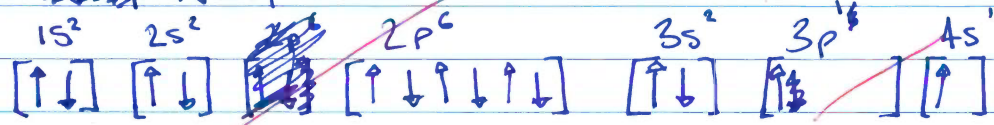
j) ~~TRUE~~

2a° $1s^2 2s^2 2p^6 3s^2 3p^3$



b° - 3 ✓

c° $N_2 - \text{~~14~~ } N - 14$



6p

Op

2p

Op

8

d. Length - Longer
Strength - weaker

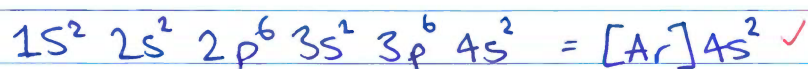
Op

3a. $E = hf$ ✓ $C = \lambda \times v$ ✓
 ~~$\lambda = \frac{C}{v}$~~ $v = \frac{C}{\lambda}$
 $= 6.6 \times 10^{-34} \times 4.87 \times 10^{14} = \frac{3 \times 10^8}{616 \times 10^{-9}}$
 $= \underline{3.21 \text{ J}}$
 $\times 10^{-19}$ $= 4.87 \times 10^{14} \text{ Hz}$ ✓

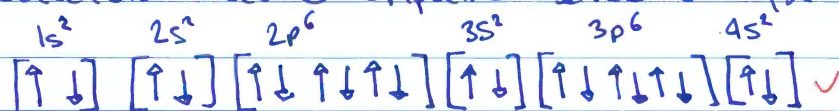
3.5p

b. Calcium - 20

3p



Calcium has 0 unpaired electrons in its ground state. ✓



c. The colour of the formation in pyrotechnics relates directly to the wavelength of the ~~emitted~~ light. ✓

1p

The amount of energy relates to the wavelength, as the energy determines the frequency, and the frequency determines the wavelength.

4.5



Op



C-6

C-6

~~H-6~~

H-6

O-2

O-2

$C_6O = 6(12) + 16 = 88 \text{ g/mol} \quad \times 27 = 2376 \text{ g}$

$H_6O = 6(1) + 16 = 22 \text{ g/mol} \quad \times 27 = 594 \text{ g}$

overall mass = 3564g

5d Endothermic

Op

10a

Before

After

Aluminium - 0 $\xrightarrow{\text{oxidation}}$ Aluminium - 9

Chlorine - 4 $\xrightarrow{\text{reduction}}$ Chlorine - ~~0~~

Nitrogen - 0 $\xrightarrow{\text{oxidation}}$ Nitrogen - 3

1p