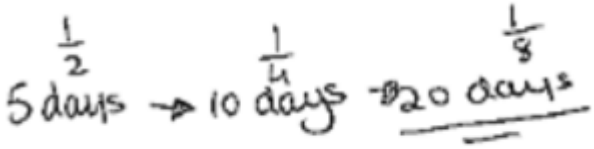
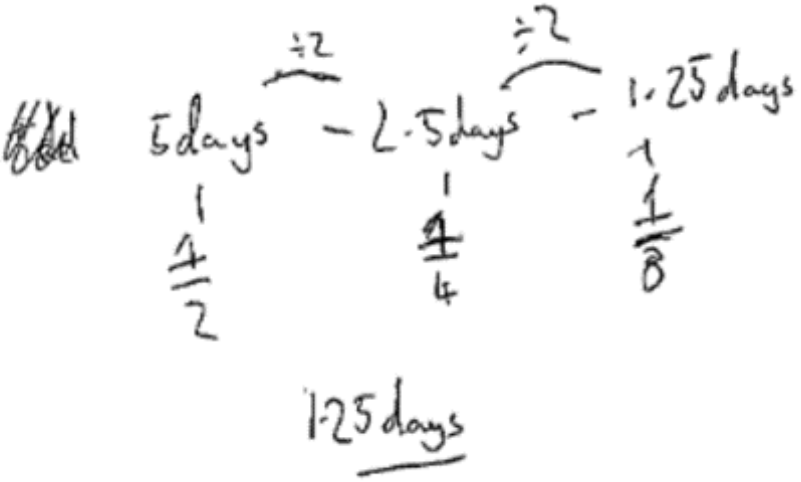
Candidate evidence

Question 1(b)(i)

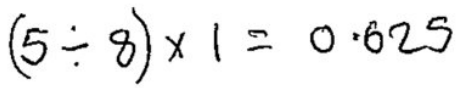
Candidate 1

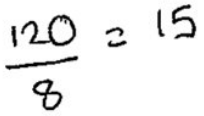


Candidate 2

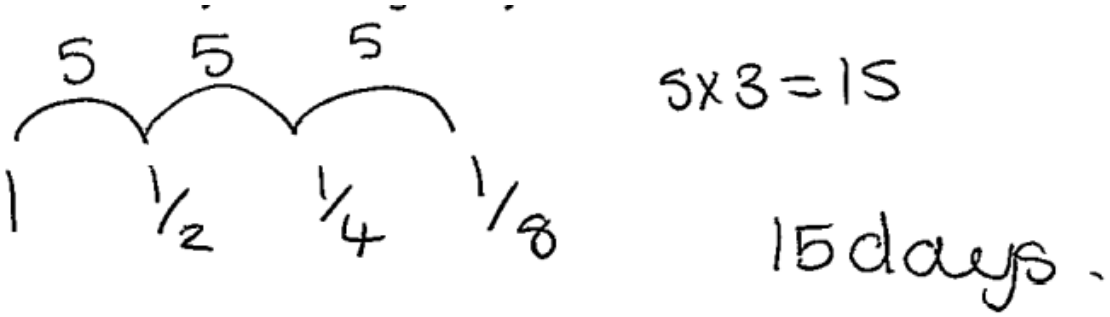


Candidate 3



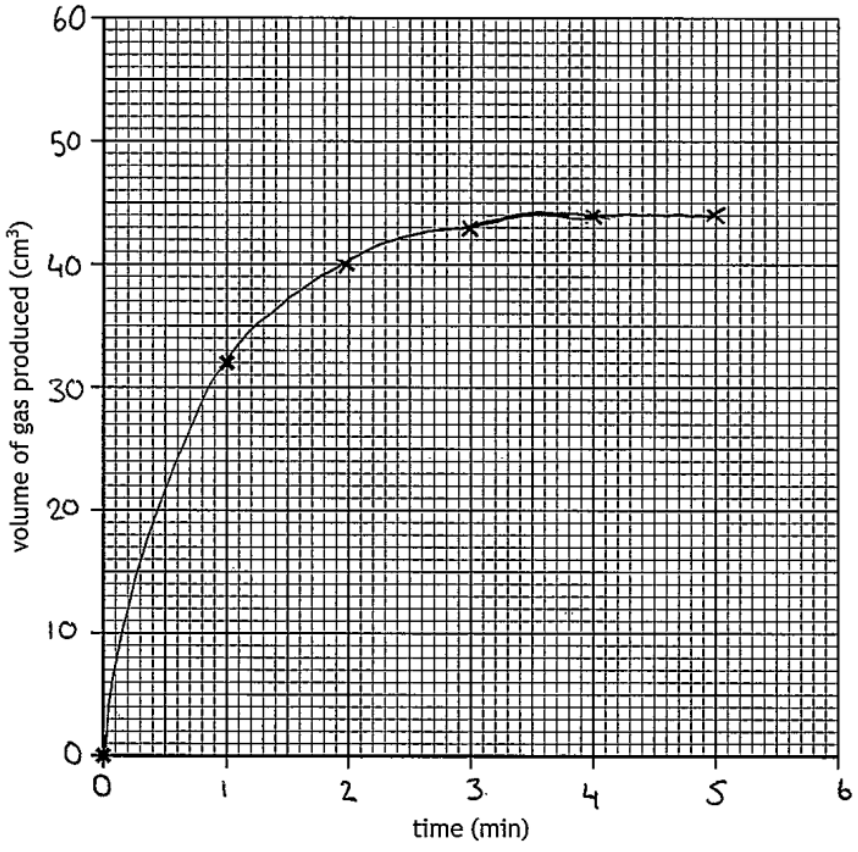


Candidate 4

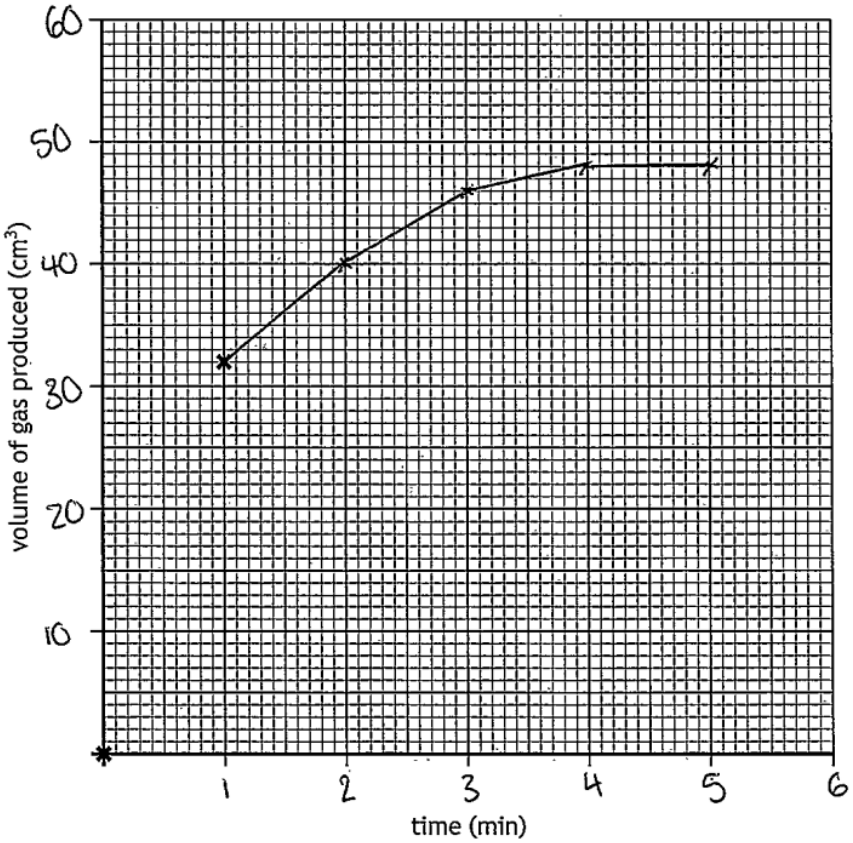


Question 2(a)

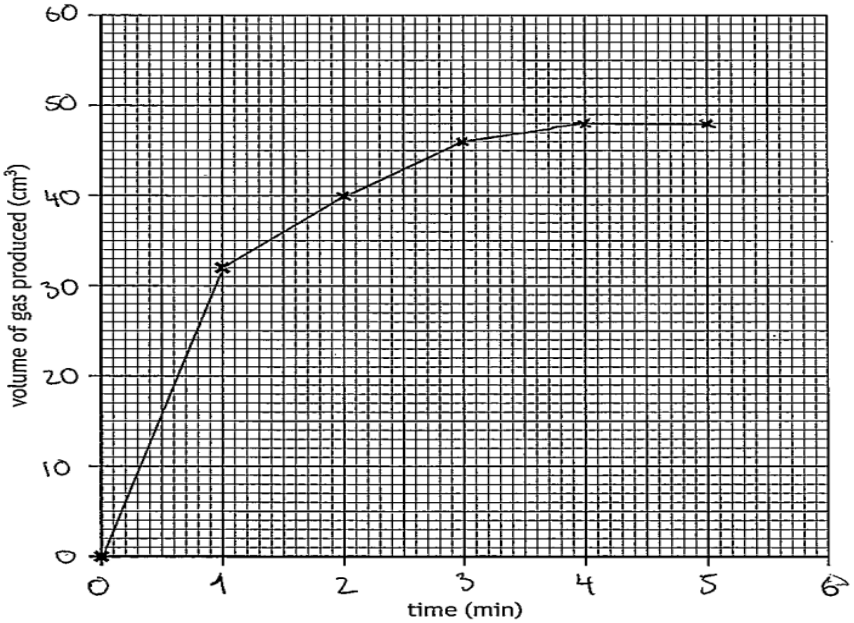
Candidate 1



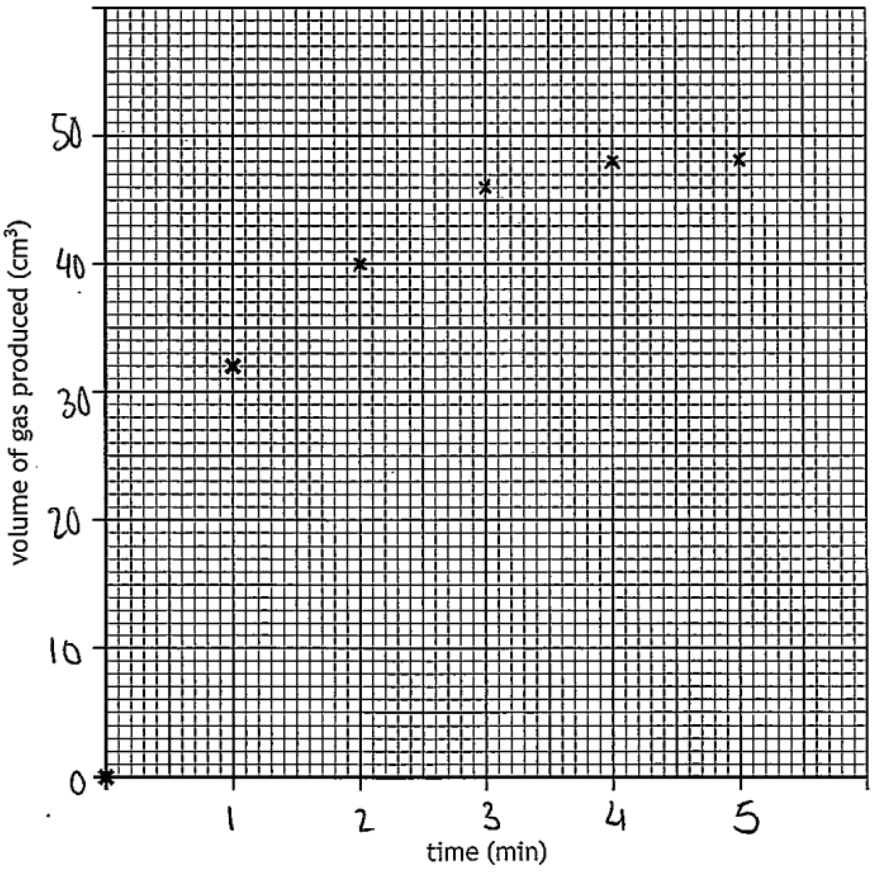
Candidate 2



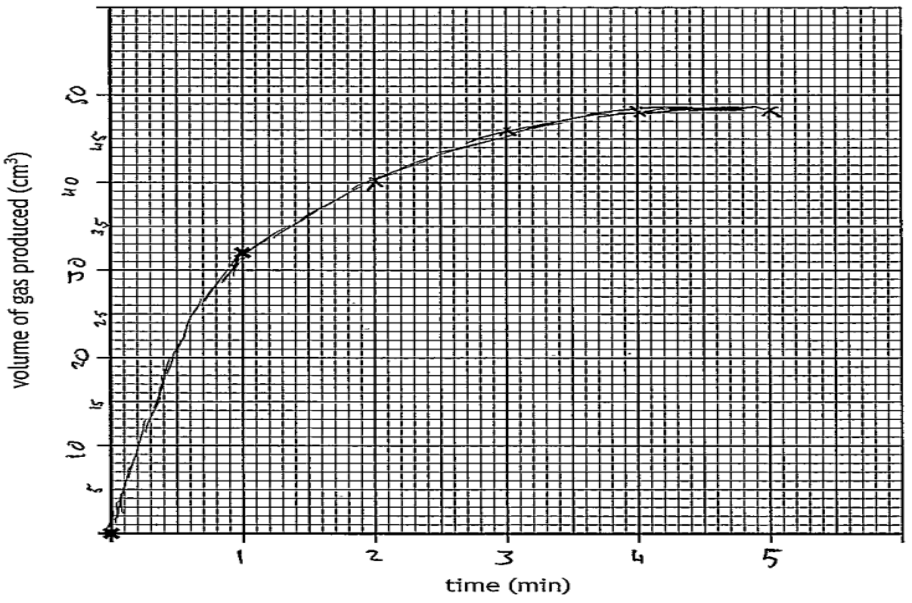
Candidate 3



Candidate 4



Candidate 5



Question 2(b)

Candidate 1

$$\text{average rate} = \frac{\Delta \text{quantity}}{\Delta \text{time}}$$

$$= \frac{16}{4}$$

$$= 4 \text{ cm}^3 \text{ min}^{-1}$$

Candidate 2

$$32 + 40 + 46 + 48 = 166$$

$$166 \div 4 = 41.5$$

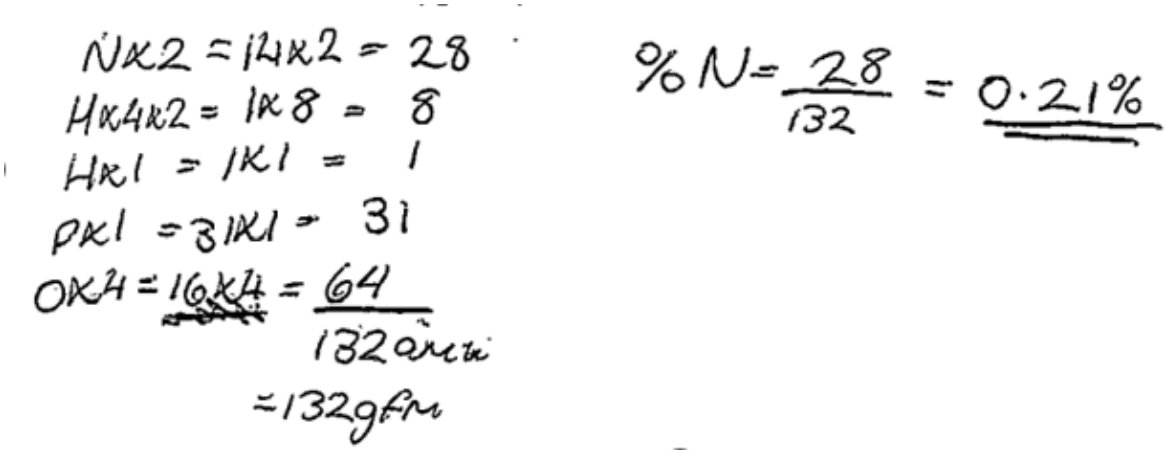
Candidate 3

$$\text{rate of reaction} = \frac{\Delta \text{ quantity}}{\Delta \text{ time}} = \frac{48 - 32}{4 - 1} = \frac{16}{3} = 5.3$$

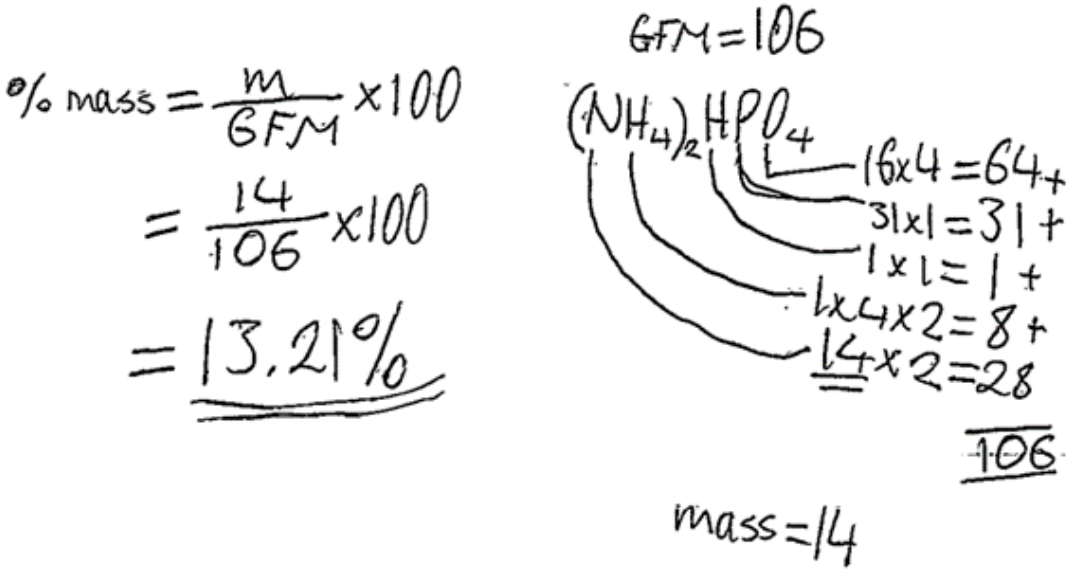
$$= 5.3 \text{ cm}^3 \text{ min}^{-1}$$

Question 3(e)(ii)

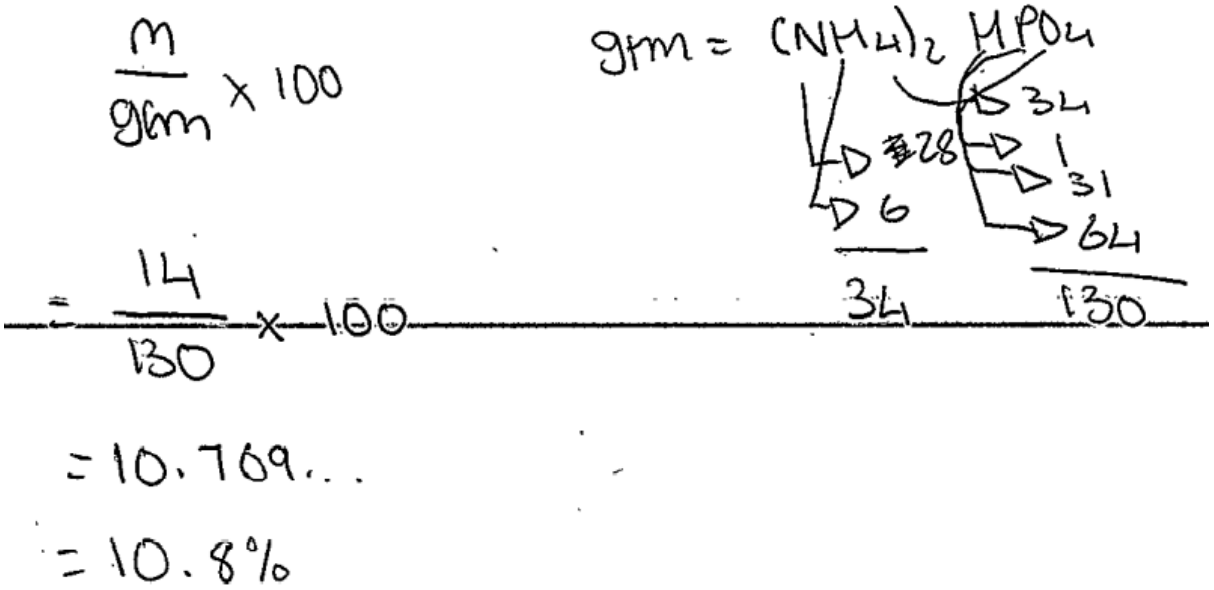
Candidate 1



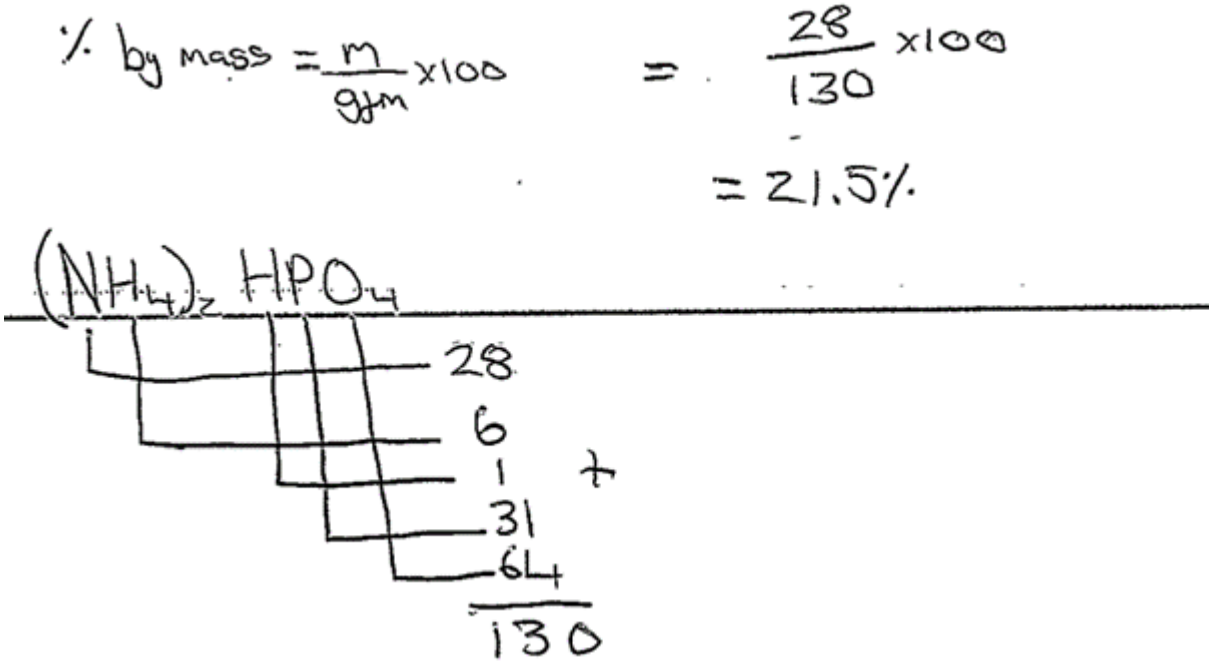
Candidate 2



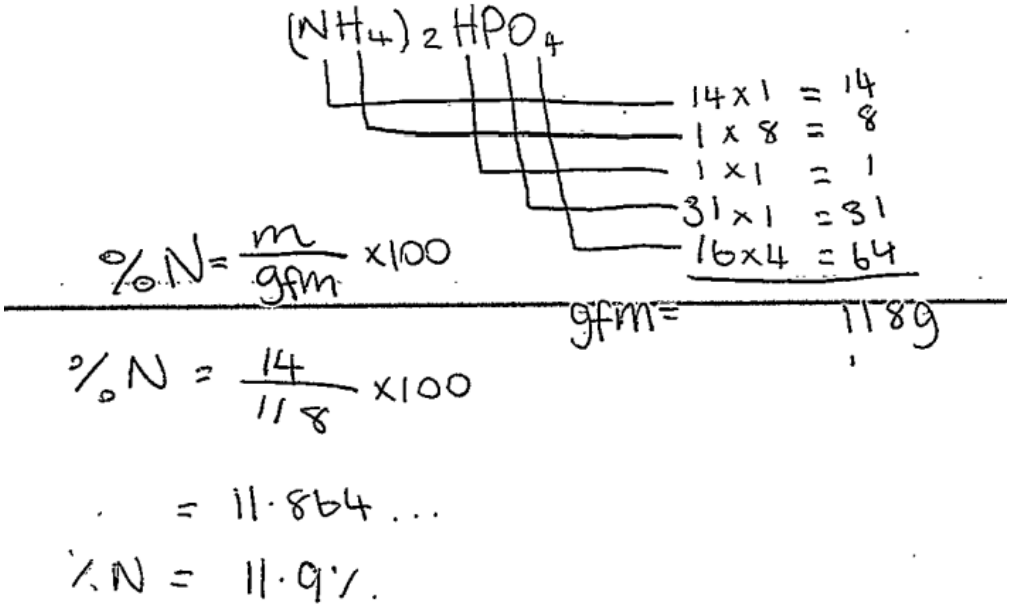
Candidate 3



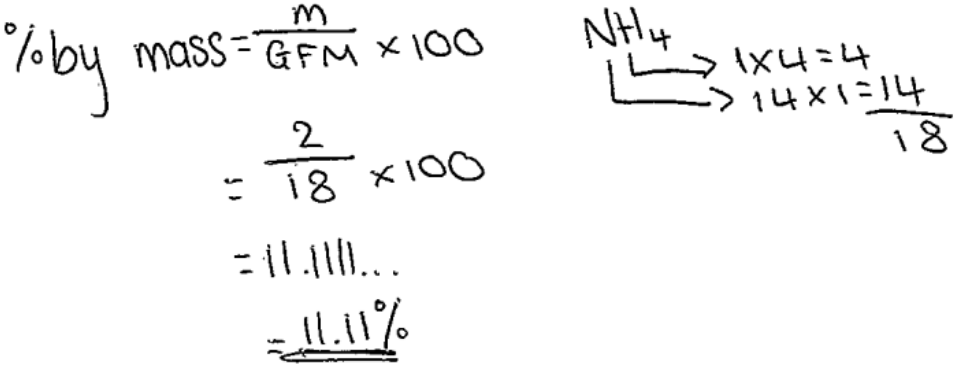
Candidate 4



Candidate 5

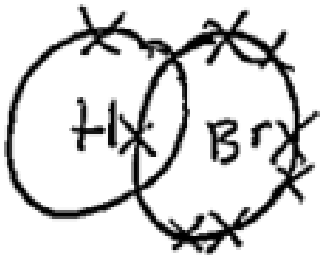


Candidate 6

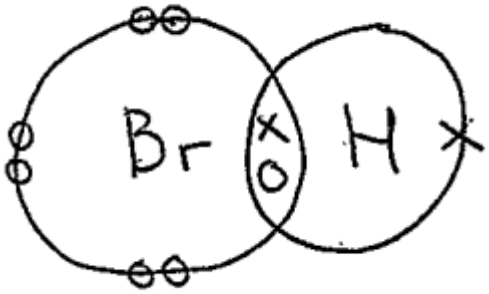


Question 4(a)(ii)

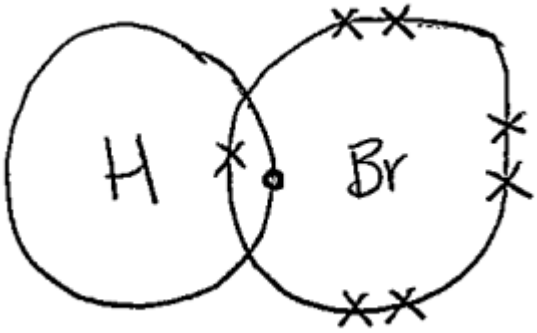
Candidate 1



Candidate 2



Candidate 3



Question 6(b)(iii)

Candidate 1

$E_H = cm\Delta t$

$= 4.18 \times 0.2 \times 15$

$= 12.54\ kJ$

Candidate 2

$E_h = cm\Delta T$

4.18 $-\frac{275.6}{374.8} = 0.8$ $36 - 23 = 12$

$E_h = 4.18 \times 0.8 \times 12$

$E_h = 40.128\ kJ$

Candidate 3

$C = 4.18\ kJ\ kg^{-1}\ °C^{-1}$

$= 4.18 \times 2 \times 0.8 \times 12$

$= 80.256\ kJ$

Candidate 4

$E_h = C m \Delta T$

$m = 200$

$\Delta T = 35 - 23 = 12$

$C =$

$E_h = 274.8 \times 200 \times 12 = 659520$

659,520

659.52 kJ

Candidate 5

$E_h = cm\Delta t$

$c = 4.18$

$m = 200g \rightarrow 0.2kg$

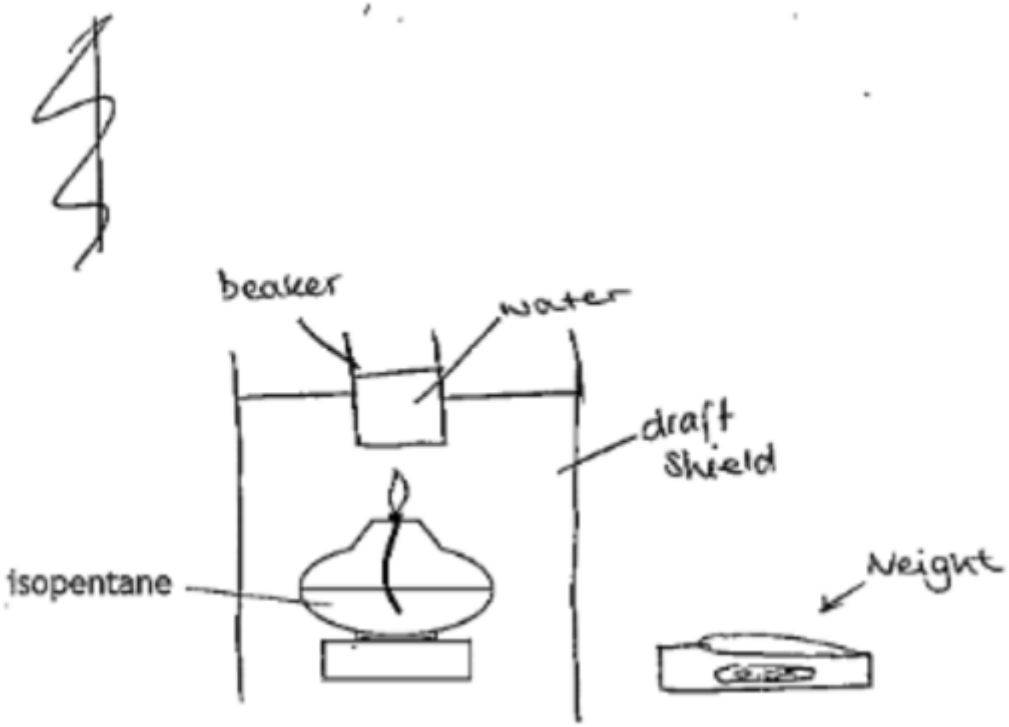
$\Delta t = 12°C$

$E_h = 4.18 \times 0.2 \times 12$

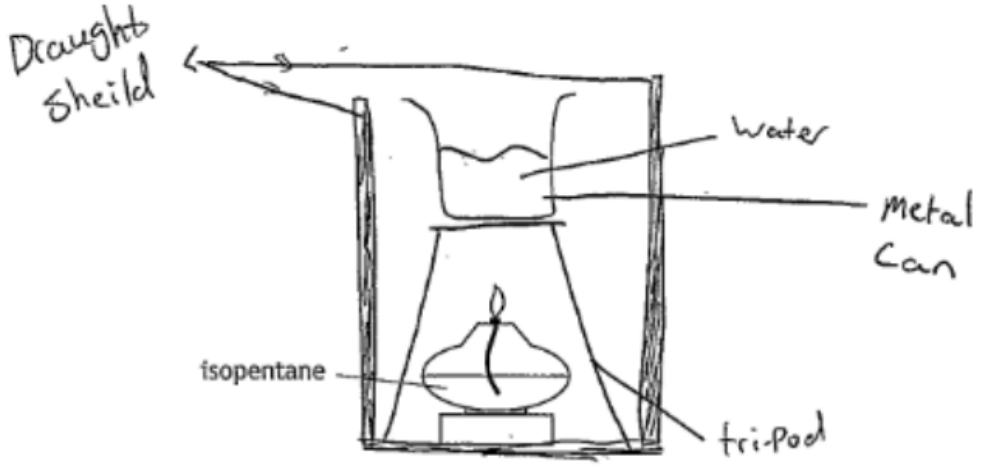
$= 10.032\ kJ$

Question 6(b)(iv)

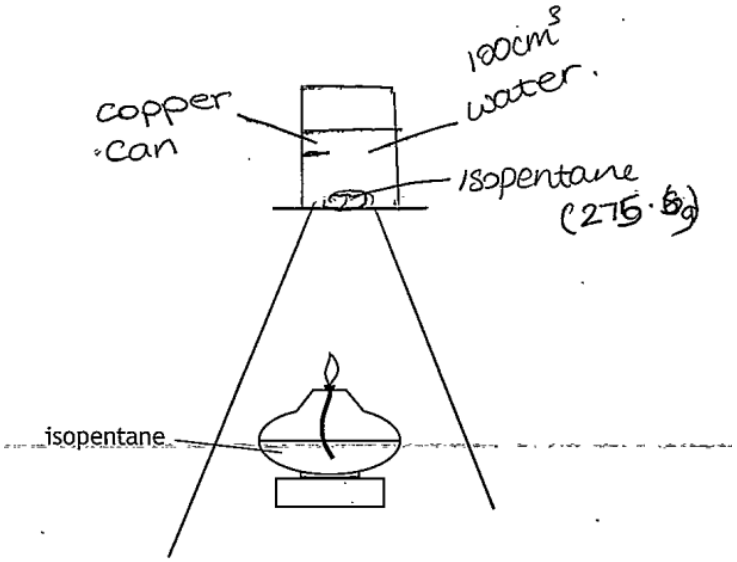
Candidate 1



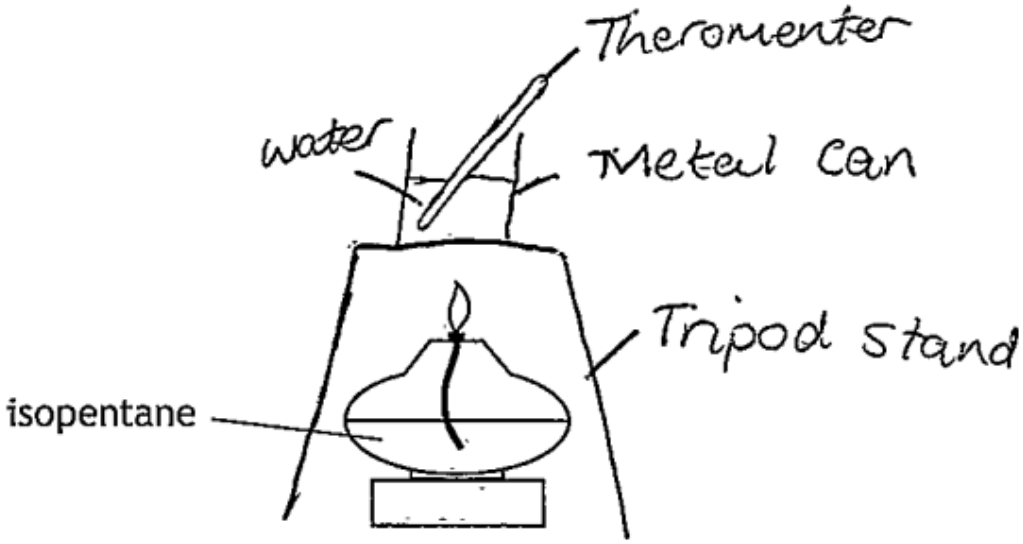
Candidate 2



Candidate 3



Candidate 4



Question 7(a)(i)

Candidate 1

$m = n \times GFM$

$m = 1.5 \times 58.5$

$m = 87.75\,g$

m
n GFM

NaCl
23
35.5
58.5

Candidate 2

(solid) NaCl

(solution) NaCl
$1.5\ mol\,l^{-1}$
$500\,cm^3$

$n = CV$
$= 1.5 \times 0.5$ $\frac{500}{1000} = 0.5$
$= 0.75$ moles

$m = n \times gfm$
$= 0.75 \times 58.5$
$= 102.38\,g$

NaCl
$23 \times 1 = 23$
$35.5 \times 1 = 35.5$
58.5

Candidate 3

NaCl

$n = CV$

$V = \frac{500\ cm^3}{1000}$

$= 0.5$ litres

$C = 1.5\ mol\ l^{-1}$

$n = 0.5 \times 1.5$

$= 0.075$ mole

$m = n \times GFM$

$n = 0.075$ mole

NaCl

$Na \times 1 = 23 \times 1 = 23$

$Cl \times 1 = 35.5 \times 1 = 35.5$

58.5 amu

$= 58.5$ GFM

$m = 0.075 \times 58.5$

$= 4.3875$

$= 4.39$ g

Question 7(b)(i)

Candidate 1

$(105 + 107 + 108) \div 3$

$= 106.6\ ^\circ C$

~~$= 107\ ^\circ C$~~

Candidate 2

$\frac{107 + 108}{2} = 107.5\ ^\circ C$

Candidate 3

106.7°

Question 7(b)(ii)

Candidate 1

	average boiling point (°C)
0.5 mol l⁻¹	101.3
1.0 mol l⁻¹	104.0°C
1.5 mol l⁻¹	107.5°C

Candidate 2

0·5mol l⁻¹ = 101·3°C
1·0mol l⁻¹ = 104·0°C
1·5mol l⁻¹ = ~~103·4~~ 106·6°C

Candidate 3

average boiling point	Sodium Chloride solution ($mol\,l^{-1}$)
106.7°C	1.5
104.0°C	1.0
101.3°C	0.5

Candidate 4

Concentration of sodium chloride solution	AVG Boiling point
1.5 mol^{-1}	106.6°C
1 mol^{-1}	104.0°C
0.5 mol^{-1}	101.3°C

Candidate 5

Concentrations	Average boiling point
0.5 mol l^{-1}	101.3°C
1.0 mol l^{-1}	104.0°C

Question 8(e)

Candidate 1

When the reaction has a pH of 7 as it is neutral.

Candidate 2

a salt is made

Candidate 3

When an acid reacts with a substance to create a ~~salt~~ solution with ~~a~~ a neutral pH, by balancing H^+ and OH^- ions.

Candidate 4

a reaction when an ~~acid is added to~~ acid and base are combined to produce water and a salt

Question 9(a)

Candidate 1

a ~~Stoo~~ Compound with the same general formula but a different structural formula.

Candidate 2

a ~~molecule~~ number of molecules with the same atomic number but different mass numbers

Candidate 3

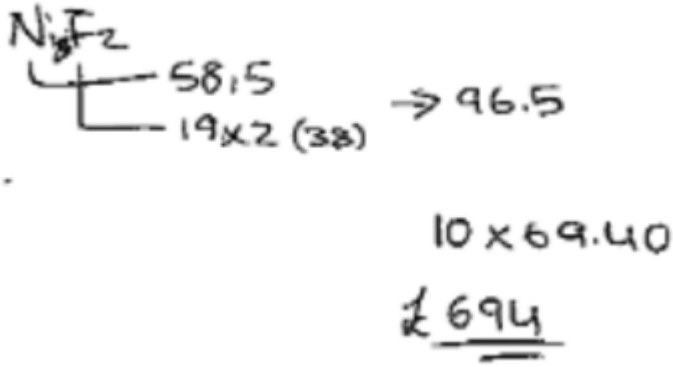
Molecules with the same molecular formula but different structural formula.

Candidate 4

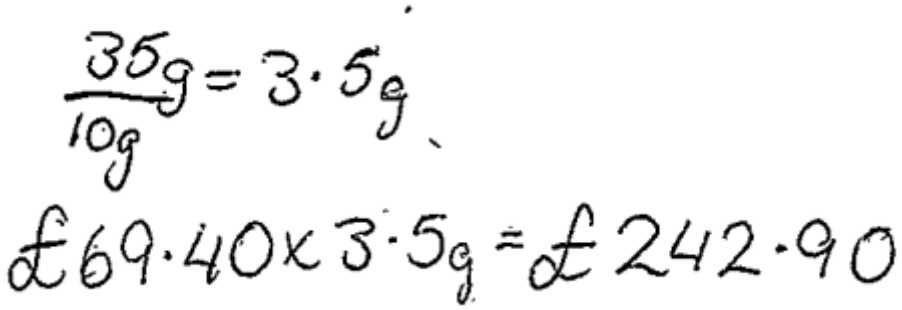
particles with the same atomic number, but different mass numbers (same number of protons, different number of neutrons)

Question 9(c)(iii)(B)

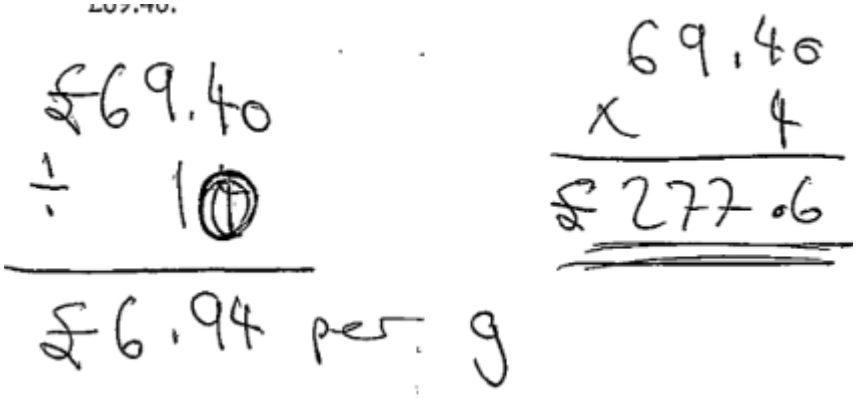
Candidate 1



Candidate 2



Candidate 3



Question 10(a)

Candidate 1

a Series of Compounds with the Same General formula but differents Structural formulas

Candidate 2

similar chemical formula different chemical properties

Candidate 3

Molecules that can be identified by certain chemical properties. They can be grouped.

Candidate 4

A family of molecules with similar chemical properties and similar structural formulae

Candidate 5

A group of elements that have similar chemical properties and that can be identified using a general formula.

Candidate 6

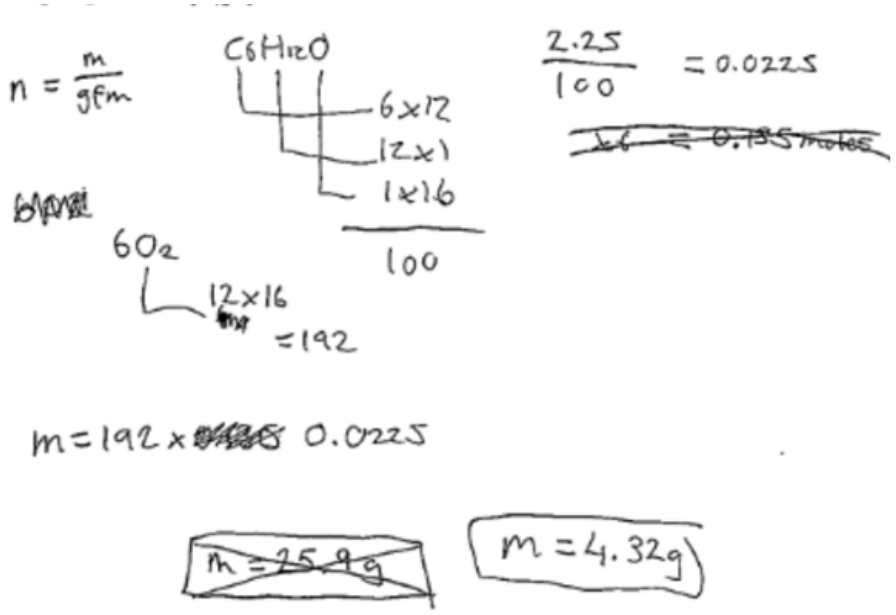
a family of compounds with the same general formula and similar chemical structures.

Candidate 7

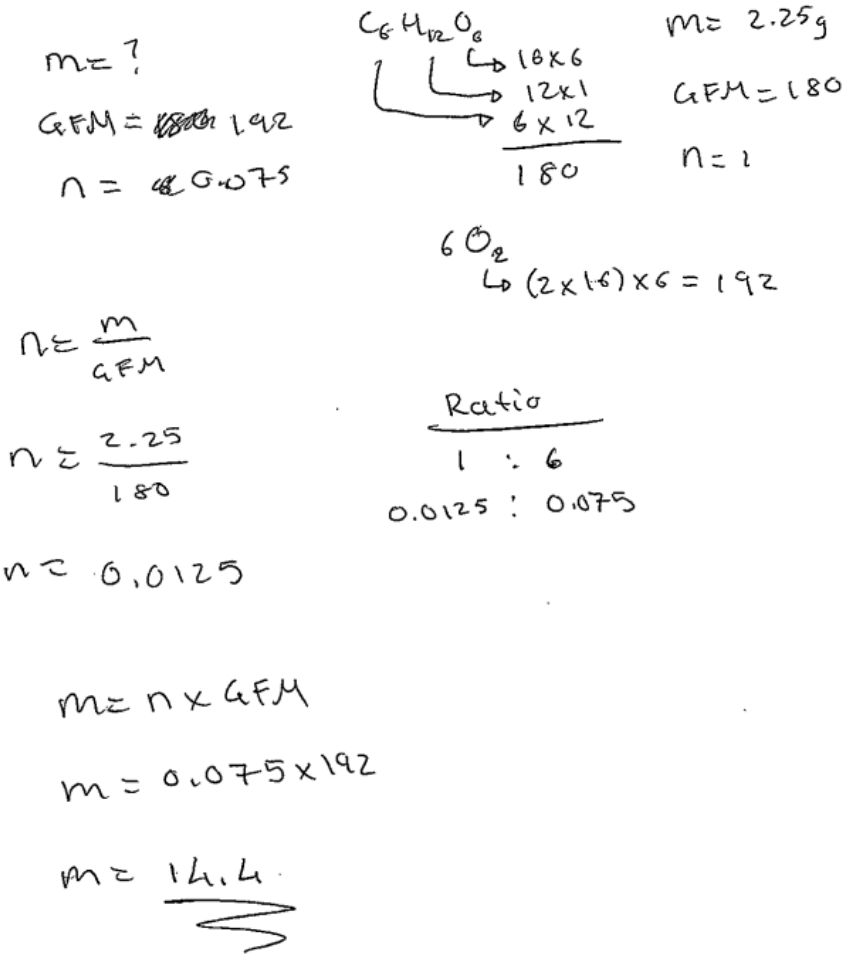
Homologous series is a group of compounds which share the same general formula and have similar chemical properties.

Question 11(c)

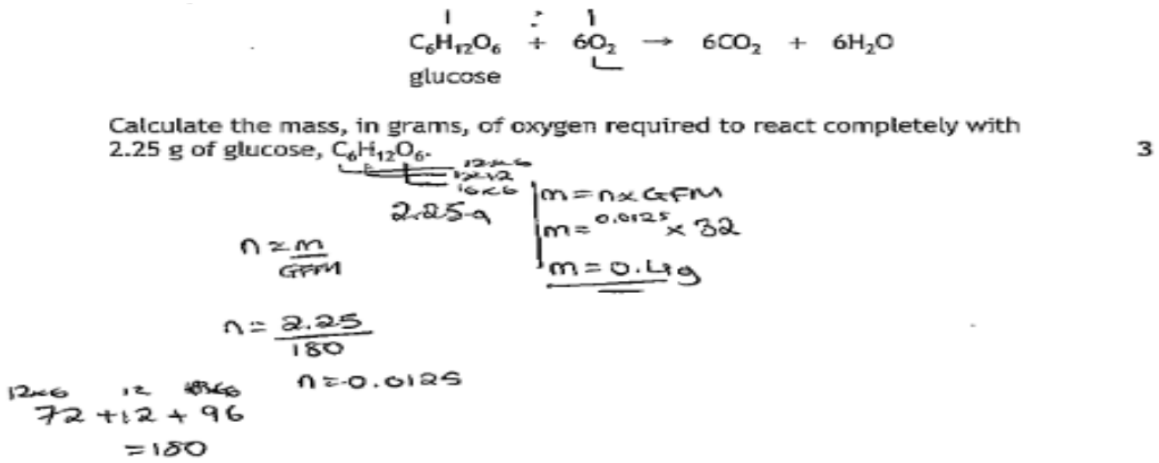
Candidate 1



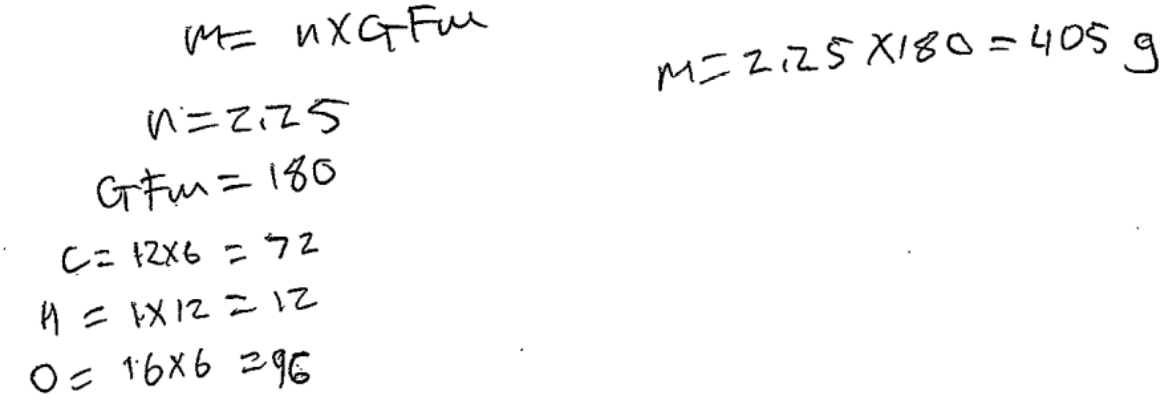
Candidate 2



Candidate 3



Candidate 4



Candidate 5