

Section B

Answer **all** questions in this section.Only **one** answer per question is allowed.

For each answer completely fill in the circle alongside the appropriate answer.

CORRECT METHOD



WRONG METHODS



If you want to change your answer you must cross out your original answer as shown.

If you wish to return to an answer previously crossed out, ring the answer you now wish to select as shown.

0 8

Which of these atoms has the largest atomic radius?

[1 mark]**A** Ar ☐**B** Cl ☐**C** Mg ☐**D** Na ☐**0 9**

Which of these species is the best reducing agent?

[1 mark]**A** Cl₂ ✗ ☐**B** Cl⁻ ☐**C** I₂ ☐**D** I⁻ ☐

1	0
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Which of these pieces of apparatus has the lowest percentage uncertainty in the measurement shown?

[1 mark]

- A** Volume of 25 cm³ measured with a burette with an uncertainty of ± 0.1 cm³. ☐
- B** Volume of 25 cm³ measured with a measuring cylinder with an uncertainty of ± 0.5 cm³. ☐
- C** Mass of 0.150 g measured with a balance with an uncertainty of ± 0.001 g. ☐
- D** Temperature change of 23.2 °C measured with a thermometer with an uncertainty of ± 0.1 °C. ☐

1	1
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A student is provided with a 5.00 cm³ sample of 1.00×10^{-2} mol dm⁻³ hydrochloric acid. The student is asked to devise a method to prepare a hydrochloric acid solution with a concentration of 5.00×10^{-4} mol dm⁻³ by diluting the sample with water.

Which of these is the correct volume of water that should be added?

[1 mark]

- A** 45.0 cm³ ☐
- B** 95.0 cm³ ☐
- C** 100 cm³ ☐
- D** 995 cm³ ☐

1	2
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Which of these species has a trigonal planar structure?

[1 mark]

- A** PH₃ ☐
- B** BCl₃ ☐
- C** H₃O⁺ ☐
- D** CH₃⁻ ☐

1 3

Use your understanding of intermolecular forces to predict which of these compounds has the highest boiling point.

[1 mark]

- A** HF ☐
- B** HCl ☐
- C** HBr ☐
- D** HI ☐

1 4

Which type of bond is formed between N and B when a molecule of NH_3 reacts with a molecule of BF_3 ?

[1 mark]

- A** Ionic. ☐
- B** Covalent. ☐
- C** Co-ordinate. ☐
- D** Van der Waals ☐

1 5

Which of these atoms has the highest electronegativity?

[1 mark]

- A** Na ☐
- B** Mg ☐
- C** Cl ☐
- D** Ar ☐

1 6

Which of these atoms has the smallest number of neutrons?

[1 mark]

- A** ^3H ☐
- B** ^4He ☐
- C** ^5He ☐
- D** ^4Li ☐

1 7Which of these substances does **not** show hydrogen bonding?**[1 mark]****A** HF ☐**B** NH₃ ☐**C** CH₃COOH ☐**D** CHF₃ ☐**1 8**

What is the formula of calcium nitrate(V)?

[1 mark]**A** CaNO₃ ☐**B** Ca(NO₃)₂ ☐**C** Ca₂NO₂ ☐**D** Ca(NO₂)₂ ☐**1 9**

Which of these elements has the highest second ionisation energy?

[1 mark]**A** Na ☐**B** Mg ☐**C** Ne ☐**D** Ar ☐

2 0

Which of the following shows chlorine in its correct oxidation states in the compounds shown?

[1 mark]

	HCl	KClO ₃	HClO	
A	−1	+3	+1	<input type="radio"/>
B	+1	−5	−1	<input type="radio"/>
C	−1	+5	+1	<input type="radio"/>
D	+1	+5	−1	<input type="radio"/>

2 1

Which substance is **not** produced in a redox reaction when solid sodium iodide reacts with concentrated sulfuric acid?

[1 mark]

- A** H₂S ☐
- B** HI ☐
- C** SO₂ ☐
- D** I₂ ☐

2 2

Which of the following contains the most chloride ions?

[1 mark]

- A** 10 cm³ of $3.30 \times 10^{-2} \text{ mol dm}^{-3}$ aluminium chloride solution ☐
- B** 20 cm³ of $5.00 \times 10^{-2} \text{ mol dm}^{-3}$ calcium chloride solution ☐
- C** 30 cm³ of $3.30 \times 10^{-2} \text{ mol dm}^{-3}$ hydrochloric acid ☐
- D** 40 cm³ of $2.50 \times 10^{-2} \text{ mol dm}^{-3}$ sodium chloride solution ☐

END OF QUESTIONS