

Q1.

Which pair of solutions, when mixed, reacts to form a dark brown solution?

- A $\text{NaF(aq)} + \text{Cl}_2\text{(aq)}$
- B $\text{NaCl(aq)} + \text{Br}_2\text{(aq)}$
- C $\text{NaBr(aq)} + \text{Cl}_2\text{(aq)}$
- D $\text{NaI(aq)} + \text{Br}_2\text{(aq)}$

(Total 1 mark)

Q2.

Some solid sodium halides are reacted with concentrated sulfuric acid.

Which solid sodium halide does **not** produce a sulfur-containing gas as one of the products?

- A NaCl
- B NaBr
- C NaI
- D NaAt

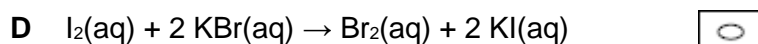
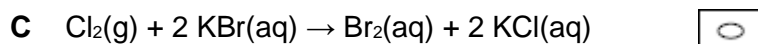
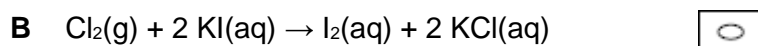
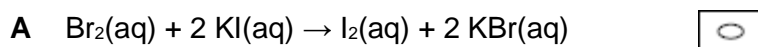
(Total 1 mark)

Q3.

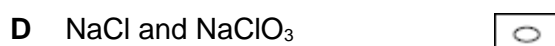
Which property increases down Group 7?

- A ability to oxidise a given reducing agent
- B boiling point
- C electronegativity
- D first ionisation energy

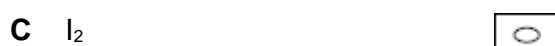
(Total 1 mark)

Q4.Which equation shows a redox reaction that does **not** occur?**(Total 1 mark)****Q5.**

Which shows the major product(s) formed when chlorine reacts with cold, dilute, aqueous sodium hydroxide?

**(Total 1 mark)****Q6.**

What is the best oxidising agent?

**(Total 1 mark)**

Q7.

Which statement is correct about reactions involving halide ions?

- A** Sodium chloride forms chlorine when added to concentrated sulfuric acid.
- B** Sodium chloride forms chlorine when added to bromine.
- C** Sodium bromide forms bromine when added to concentrated sulfuric acid.
- D** Sodium bromide forms bromine when added to iodine.

(Total 1 mark)**Q8.**

An aqueous solution of a salt gives a white precipitate when mixed with aqueous silver nitrate and when mixed with dilute sulfuric acid.

Which could be the formula of the salt?

- A** BaCl_2
- B** $(\text{NH}_4)_2\text{SO}_4$
- C** KCl
- D** $\text{Sr}(\text{NO}_3)_2$

(Total 1 mark)**Q9.**Which statement is **not** correct about the trends in properties of the hydrogen halides from HCl to HI ?

- A** The boiling points decrease.
- B** The bond dissociation energy of H-X decreases.
- C** The polarity of the H-X bond decreases.
- D** They are more easily oxidised in aqueous solutions.

(Total 1 mark)

Q10.

What is the most suitable reagent for detecting the presence of carbonate ions in the presence of an excess of sulfate ions?

- A dilute NaOH(aq)
- B dilute H₂SO₄(aq)
- C BaCl₂(aq)
- D NaCl(aq)

(Total 1 mark)

Q11.

Which statement is correct about the reaction between concentrated sulfuric acid and solid sodium bromide?

- A Bromide ions are reduced.
- B Hydrogen bromide and sulfur are formed.
- C Sulfuric acid acts as an oxidising agent.
- D Bromine and hydrogen sulfide are formed.

(Total 1 mark)

Q12.

Which is the best technique to remove the silver chloride that forms when aqueous solutions of silver nitrate and sodium chloride react?

- A Refluxing
- B Evaporation
- C Filtration
- D Distillation

(Total 1 mark)

Q13.

Which statement about astatine is correct?

- A Astatine has a greater electronegativity than bromine
- B Astatine is a better oxidising agent than bromine
- C Astatine has a greater boiling point than bromine
- D Astatine has a greater first ionisation energy than bromine

(Total 1 mark)

Q14.

Which species is **not** produced by a redox reaction between solid sodium iodide and concentrated sulfuric acid?

- A Na_2SO_4
- B H_2S
- C S
- D SO_2

(Total 1 mark)

Q15.

Which equation represents a reaction that does take place?

- A $\text{Cl}_2 + 2\text{NaI} \rightarrow 2\text{NaCl} + \text{I}_2$
- B $\text{Br}_2 + 2\text{NaCl} \rightarrow 2\text{NaBr} + \text{Cl}_2$
- C $\text{NaCl} + \text{H}_2\text{O} \rightarrow \text{HCl} + \text{NaOH}$
- D $2\text{HCl} + \text{H}_2\text{SO}_4 \rightarrow \text{Cl}_2 + \text{SO}_2 + 2\text{H}_2\text{O}$

(Total 1 mark)

Q16.

Which species is the best oxidising agent?

- A Cl_2
- B Cl^-
- C Br_2
- D Br^-

(Total 1 mark)

Q17.

Which statement is **not** correct about the addition of chlorine to water?

- A Chlorine can react with water to form an alkaline solution.
- B Chlorine can react with water to produce chloride ions and oxygen.
- C Chlorine can be added to drinking water to kill bacteria.
- D Chlorine can react with water to produce chloride ions and chlorate(I) ions.

(Total 1 mark)

Q18.

Which of these species is the best reducing agent?

- A Cl_2
- B Cl^-
- C I_2
- D I^-

(Total 1 mark)

Q19.

Which of these substances reacts most rapidly to produce a silver halide precipitate with acidified silver nitrate?

- A CH_3Br
- B CH_3Cl
- C CH_3F
- D CH_3I

(Total 1 mark)