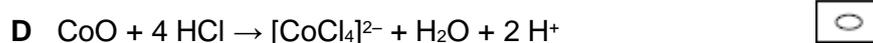
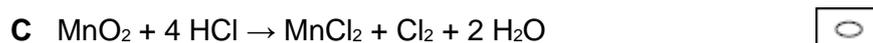
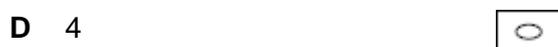
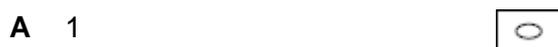


Q1.

Which compound contains a chlorine atom with an oxidation state of +4?

**(Total 1 mark)****Q2.**Which equation does **not** show the reduction of a transition metal?**(Total 1 mark)****Q3.** NO_2^- ions can be reduced in acidic solution to NO How many electrons are gained when each NO_2^- ion is reduced?**(Total 1 mark)**

Q4.

Which compound contains chlorine in an oxidation state of +1?

- A Cl_2O
- B KClO_3
- C ClF_3
- D CCl_4

(Total 1 mark)**Q5.**

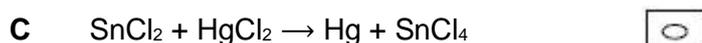
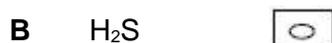
In which conversion is the metal reduced?

- A $\text{Cr}_2\text{O}_7^{2-} \rightarrow \text{CrO}_4^{2-}$
- B $\text{MnO}_4^{2-} \rightarrow \text{MnO}_4^-$
- C $\text{TiO}_2 \rightarrow \text{TiO}_3^{2-}$
- D $\text{VO}_3^- \rightarrow \text{VO}^{2+}$

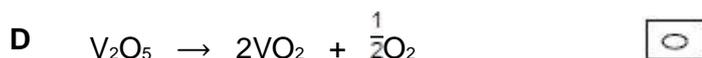
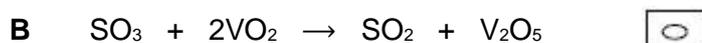
(Total 1 mark)**Q6.**Which equation does **not** represent a redox reaction?

- A $\text{Mg} + 2 \text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$
- B $\text{CH}_4 + 2 \text{O}_2 \rightarrow \text{CO}_2 + 2 \text{H}_2\text{O}$
- C $\text{Fe} + \text{CuSO}_4 \rightarrow \text{FeSO}_4 + \text{Cu}$
- D $\text{CuO} + 2 \text{HCl} \rightarrow \text{CuCl}_2 + \text{H}_2\text{O}$

(Total 1 mark)

Q7.Which of these is **not** a redox reaction?**(Total 1 mark)****Q8.**Which species is **not** produced by a redox reaction between solid sodium iodide and concentrated sulfuric acid?**(Total 1 mark)****Q9.** V_2O_5 can be used as a catalyst in the Contact Process.

Which is a step in the Contact Process in which the vanadium is oxidised?

**(Total 1 mark)**

Q10.

Which of these shows nitrogen in its correct oxidation states in the compounds given?

	NH_3	N_2O	HNO_2	
A	+3	-1	+5	<input type="checkbox"/>
B	-3	+1	+3	<input type="checkbox"/>
C	-3	+1	-5	<input type="checkbox"/>
D	+3	-1	-3	<input type="checkbox"/>

(Total 1 mark)

Q11.

Which of these is a redox reaction?

- A** $\text{CaO} + \text{SiO}_2 \rightarrow \text{CaSiO}_3$
- B** $\text{H}_2\text{SO}_4 + \text{Na}_2\text{O} \rightarrow \text{Na}_2\text{SO}_4 + \text{H}_2\text{O}$
- C** $\text{NaBr} + \text{H}_2\text{SO}_4 \rightarrow \text{NaHSO}_4 + \text{HBr}$
- D** $\text{Mg} + \text{S} \rightarrow \text{MgS}$

(Total 1 mark)

Q12.

Which of these species is the best reducing agent?

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

(Total 1 mark)

Q13.

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

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

(Total 1 mark)

Q14.

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

- A H₂S
- B HI
- C SO₂
- D I₂

(Total 1 mark)

Q15.

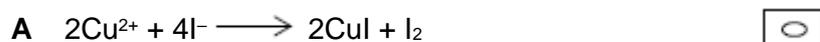
In which reaction is hydrogen acting as an oxidising agent?

- A $\text{Cl}_2 + \text{H}_2 \longrightarrow 2\text{HCl}$
- B $(\text{CH}_3)_2\text{CO} + \text{H}_2 \longrightarrow (\text{CH}_3)_2\text{CHOH}$
- C $\text{N}_2 + 3\text{H}_2 \longrightarrow 2\text{NH}_3$
- D $2\text{Na} + \text{H}_2 \longrightarrow 2\text{NaH}$

(Total 1 mark)

Q16.

In which reaction is the metal oxidised?



(Total 1 mark)

Q17.

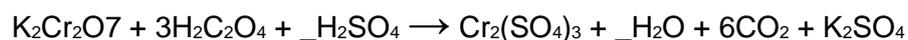
Which species contains an element with an oxidation state of +4?



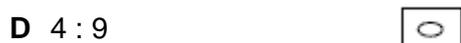
(Total 1 mark)

Q18.

Refer to the unbalanced equation below when answering this question.



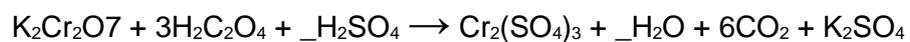
In the balanced equation the mole ratio for sulfuric acid to water is



(Total 1 mark)

Q19.

Refer to the unbalanced equation below when answering this question.



What is the reducing agent in this reaction?

A H⁺

B C₂O₄²⁻

C K⁺

D Cr₂O₇²⁻

(Total 1 mark)