

**AQA – Oxidation, reduction and redox equations – AS Chemistry P1**

1. June/ 2020/Paper\_1/No.13

$\text{NO}_2^-$  ions can be reduced in acidic solution to  $\text{NO}$   
How many electrons are gained when each  $\text{NO}_2^-$  ion is reduced?

**[1 mark]**

A 1

B 2

C 3

D 4

2. June/ 2020/Paper\_1/No.21

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

**[1 mark]**A  $\text{Cl}_2\text{O}$ B  $\text{KClO}_3$ C  $\text{ClF}_3$ D  $\text{CCl}_4$ 

3. June/ 2020/Paper\_1/No.22

Which equation shows a redox reaction that does **not** occur?

**[1 mark]**A  $\text{Br}_2(\text{aq}) + 2\text{KI}(\text{aq}) \rightarrow \text{I}_2(\text{aq}) + 2\text{KBr}(\text{aq})$ B  $\text{Cl}_2(\text{g}) + 2\text{KI}(\text{aq}) \rightarrow \text{I}_2(\text{aq}) + 2\text{KCl}(\text{aq})$ C  $\text{Cl}_2(\text{g}) + 2\text{KBr}(\text{aq}) \rightarrow \text{Br}_2(\text{aq}) + 2\text{KCl}(\text{aq})$ D  $\text{I}_2(\text{aq}) + 2\text{KBr}(\text{aq}) \rightarrow \text{Br}_2(\text{aq}) + 2\text{KI}(\text{aq})$

## 4. June/ 2019/Paper\_1/No.3(3.4-3.7)

0 3 . 4 Deduce the oxidation state of chromium in the  $\text{Cr}_2\text{O}_7^{2-}$  ion.

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[1 mark]

0 3 . 5 Iodide ions can be oxidised to iodine using  $\text{Cr}_2\text{O}_7^{2-}$  ions.

Deduce a half-equation to show the oxidation of iodide ions to iodine.

State symbols are **not** required.

[1 mark]

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0 3 . 6 Deduce a half-equation for the conversion in acidic solution of  $\text{Cr}_2\text{O}_7^{2-}$  ions to  $\text{Cr}^{3+}$  ions.

State symbols are **not** required.

[1 mark]

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0 3 . 7 Use your answers from questions 03.5 and 03.6 to deduce the overall redox equation for the reaction between iodide ions and acidified  $\text{Cr}_2\text{O}_7^{2-}$  ions.

State symbols are **not** required.

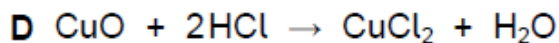
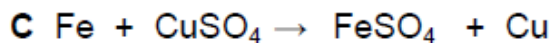
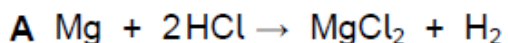
[1 mark]

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5. [June/ 2020/Paper\\_1/No.15](#)

Which equation does **not** represent a redox reaction?

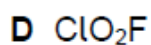
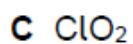
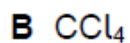
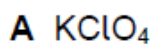
[1 mark]



6. [June/ 2021/Paper\\_1/No.16](#)

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

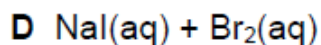
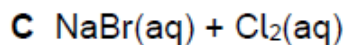
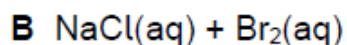
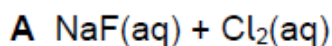
[1 mark]



7. [June/ 2021/Paper\\_1/No.19](#)

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

[1 mark]



## 8. June/ 2021/Paper\_1/No.3

0 3

This question is about redox reactions.

0 3 . 1

State, in terms of electrons, the meaning of the term oxidising agent.

[1 mark]

0 3 . 2

 $\text{Cr}_2\text{O}_7^{2-}$  can oxidise  $\text{SO}_3^{2-}$  in acidic conditions to form  $\text{Cr}^{3+}$  and  $\text{SO}_4^{2-}$ Deduce a half-equation for the oxidation of  $\text{SO}_3^{2-}$  to  $\text{SO}_4^{2-}$ Deduce a half-equation for the reduction of  $\text{Cr}_2\text{O}_7^{2-}$  to  $\text{Cr}^{3+}$ Deduce the overall equation for the oxidation of  $\text{SO}_3^{2-}$  by  $\text{Cr}_2\text{O}_7^{2-}$ 

[3 marks]

Half-equation for the oxidation of  $\text{SO}_3^{2-}$  to  $\text{SO}_4^{2-}$ Half-equation for the reduction of  $\text{Cr}_2\text{O}_7^{2-}$  to  $\text{Cr}^{3+}$ 

Overall equation