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

1. June/ 2020/Paper_1/No.13

NO_2^- ions can be reduced in acidic solution to NO

How many electrons are gained when each 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 Cl_2O ⬭

B $KClO_3$ ⬭

C ClF_3 ⬭

D CCl_4 ⬭

3. June/ 2020/Paper_1/No.22

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

[1 mark]

A $Br_2(aq) + 2KI(aq) \rightarrow I_2(aq) + 2KBr(aq)$ ⬭

B $Cl_2(g) + 2KI(aq) \rightarrow I_2(aq) + 2KCl(aq)$ ⬭

C $Cl_2(g) + 2KBr(aq) \rightarrow Br_2(aq) + 2KCl(aq)$ ⬭

D $I_2(aq) + 2KBr(aq) \rightarrow Br_2(aq) + 2KI(aq)$ ⬭

4. June/ 2019/Paper_1/No.3(3.4-3.7)

0 3 . 4 Deduce the oxidation state of chromium in the $Cr_2O_7^{2-}$ ion.

[1 mark]

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0 3 . 5 Iodide ions can be oxidised to iodine using $Cr_2O_7^{2-}$ 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 $Cr_2O_7^{2-}$ ions to 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 $Cr_2O_7^{2-}$ 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]

A $Mg + 2HCl \rightarrow MgCl_2 + H_2$ ⬭

B $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$ ⬭

C $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$ ⬭

D $CuO + 2HCl \rightarrow CuCl_2 + H_2O$ ⬭

6. June/ 2021/Paper_1/No.16

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

[1 mark]

A $KClO_4$ ⬭

B CCl_4 ⬭

C ClO_2 ⬭

D ClO_2F ⬭

7. June/ 2021/Paper_1/No.19

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

[1 mark]

A $NaF(aq) + Cl_2(aq)$ ⬭

B $NaCl(aq) + Br_2(aq)$ ⬭

C $NaBr(aq) + Cl_2(aq)$ ⬭

D $NaI(aq) + Br_2(aq)$ ⬭

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 $Cr_2O_7^{2-}$ can oxidise SO_3^{2-} in acidic conditions to form Cr^{3+} and SO_4^{2-}

Deduce a half-equation for the oxidation of SO_3^{2-} to SO_4^{2-}

Deduce a half-equation for the reduction of $Cr_2O_7^{2-}$ to Cr^{3+}

Deduce the overall equation for the oxidation of SO_3^{2-} by $Cr_2O_7^{2-}$

[3 marks]

Half-equation for the oxidation of SO_3^{2-} to SO_4^{2-}

Half-equation for the reduction of $Cr_2O_7^{2-}$ to Cr^{3+}

Overall equation