

## Redox (MCQ)

1. A phosphate(V) ion has the formula  $\text{PO}_4^{3-}$ .

What is the formula for copper(I) phosphate(V)?

- A  $\text{Cu}(\text{PO}_4)_5$
- B  $\text{Cu}_5\text{PO}_4$
- C  $\text{Cu}(\text{PO}_4)_3$
- D  $\text{Cu}_3\text{PO}_4$

Your answer

[1]

2. What is the oxidation number of Fe in  $\text{K}_2\text{FeO}_4$ ?

- A +4
- B +5
- C +6
- D +7

Your answer

[1]

3. Which reaction shows oxidation of sulfur?

- A  $2\text{HBr} + \text{H}_2\text{SO}_4 \rightarrow \text{SO}_2 + 2\text{H}_2\text{O} + \text{Br}_2$
- B  $\text{SO}_2 + 2\text{NaOH} \rightarrow \text{Na}_2\text{SO}_3 + \text{H}_2\text{O}$
- C  $8\text{HI} + \text{H}_2\text{SO}_4 \rightarrow 4\text{I}_2 + \text{H}_2\text{S} + 4\text{H}_2\text{O}$
- D  $\text{H}_2\text{S} + \text{Cl}_2 \rightarrow 2\text{HCl} + \text{S}$

Your answer

[1]

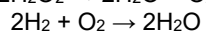
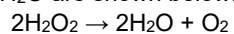
4. What is the oxidation number of nitrogen in  $\text{Mg}(\text{NO}_3)_2$ ?

- A     -3
- B     +2
- C     +5
- D     +6

Your answer

[1]

5. Equations for two reactions that form  $\text{H}_2\text{O}$  are shown below.



Which statement is correct?

- A. Hydrogen is reduced in both reactions.
- B. Hydrogen is reduced in only one of the reactions.
- C. Oxygen is oxidised in both reactions.
- D. Oxygen is oxidised in only one of the reactions.

Your answer

[1]

6. What is the oxidation number of vanadium in the ion  $\text{V}_2\text{O}_7^{4-}$ ?

- A. +5
- B. +7
- C. +10
- D. +14

Your answer

[1]

7. Which equation represents a redox reaction?

- A.  $\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$
- B.  $\text{MgO} + 2\text{HCl} \rightarrow \text{H}_2\text{O} + \text{MgCl}_2$
- C.  $\text{MgCO}_3 + 2\text{HCl} \rightarrow \text{CO}_2 + \text{H}_2\text{O} + \text{MgCl}_2$
- D.  $\text{Mg}(\text{OH})_2 + 2\text{HCl} \rightarrow \text{MgCl}_2 + 2\text{H}_2\text{O}$

Your answer

[1]

8. What is the formula of chromium(III) sulfate?

- A.  $\text{Cr}_3\text{SO}_4$
- B.  $\text{Cr}(\text{SO}_4)_3$
- C.  $\text{Cr}_2(\text{SO}_4)_3$
- D.  $\text{Cr}_3\text{SO}_3$

Your answer

[1]

END OF QUESTION PAPER

# Mark scheme – Redox (MCQ)

Question			Answer/Indicative content	Marks	Guidance
1			D	1 (AO1.2)	
			<b>Total</b>	<b>1</b>	
2			C	1	<p><b>ALLOW +6</b></p> <p><b><u>Examiner's Comments</u></b></p> <p>Nearly all candidates responded with the correct response of C. Candidates seem to have a very good understanding of applying oxidation number rules.</p>
			<b>Total</b>	<b>1</b>	
3			D	1	<p><b><u>Examiner's Comments</u></b></p> <p>Candidates needed to do a lot of work to solve this problem and most wrote oxidation numbers around the equations. This systematic process allowed most candidates to find that D is the only option in which sulfur is oxidised.</p>
			<b>Total</b>	<b>1</b>	
4			C	1	<p><b>ALLOW +5 OR 5+ in box</b></p> <p><b><u>Examiner's Comments</u></b></p> <p>Generally scored well.</p>
			<b>Total</b>	<b>1</b>	
5			D	1	
			<b>Total</b>	<b>1</b>	
6			A	1	
			<b>Total</b>	<b>1</b>	
7			A	1	
			<b>Total</b>	<b>1</b>	
8			C	1	
			<b>Total</b>	<b>1</b>	