

**C. C. C. Heep Woh College**  
**Form 4 Chemistry Quiz 8**  
**Redox Reaction**

Suggested Answer

1.

½ marks each

	Reaction	“O”, “R” or “N”
(a)	$\underline{\text{Zn}}^{2+}(\text{aq}) + 2\text{OH}^{-}(\text{aq}) \longrightarrow \text{Zn}(\text{OH})_2(\text{s})$	N
(b)	$2\underline{\text{Fe}}^{3+}(\text{aq}) + \text{Mg}(\text{s}) \longrightarrow \text{Mg}^{2+}(\text{aq}) + 2\underline{\text{Fe}}^{2+}(\text{aq})$	R
(c)	$6\underline{\text{Na}}(\text{s}) + \underline{\text{N}}_2(\text{g}) \longrightarrow 2\underline{\text{N}}_3(\text{s})$	R
(d)	$\underline{\text{Br}}_2(\text{g}) + \text{H}_2(\text{g}) \longrightarrow 2\underline{\text{HBr}}(\text{g})$	R
(e)	$\underline{\text{K}}(\text{s}) + \underline{\text{O}}_2(\text{g}) \longrightarrow \underline{\text{KO}}_2(\text{s})$	R
(f)	$\text{C}(\text{s}) + 2\underline{\text{H}}_2\underline{\text{S}}\underline{\text{O}}_4(\text{l}) \longrightarrow 2\underline{\text{S}}\underline{\text{O}}_2(\text{g}) + \underline{\text{C}}\underline{\text{O}}_2(\text{g}) + 2\underline{\text{H}}_2\underline{\text{O}}(\text{l})$	R
(g)	$\text{CuO}(\text{s}) + \underline{\text{C}}\underline{\text{O}}(\text{g}) \longrightarrow \text{Cu}(\text{s}) + \underline{\text{C}}\underline{\text{O}}_2(\text{g})$	O
(h)	$4\underline{\text{K}}\underline{\text{C}}\underline{\text{I}}\underline{\text{O}}_3(\text{s}) \longrightarrow 3\underline{\text{K}}\underline{\text{C}}\underline{\text{I}}\underline{\text{O}}_4(\text{s}) + \underline{\text{K}}\underline{\text{C}}\underline{\text{I}}(\text{s})$	O

2.

½ marks each

	Chemical	Oxidation number
(a)	NO	+2
(b)	N <sub>2</sub> O <sub>4</sub>	+4
(c)	N <sub>2</sub> O	+1
(d)	Mg(NO <sub>3</sub> ) <sub>2</sub>	+5
(e)	NaNO <sub>2</sub>	+3
(f)	(NH <sub>4</sub> )CO <sub>3</sub>	-3
(g)	K <sub>3</sub> N	-3
(h)	NH <sub>3</sub>	-3
(i)	N <sub>2</sub>	0
(j)	NO <sub>2</sub>	+4

3. (a)  $\text{SO}_2 + 2\text{H}_2\text{O} \longrightarrow \text{SO}_4^{2-} + 4\text{H}^+ + 2\text{e}^-$
- $\text{Cr}_2\text{O}_7^{2-} + 14\text{H}^+ + 6\text{e}^- \longrightarrow 2\text{Cr}^{3+} + 7\text{H}_2\text{O}$  1
- $3\text{SO}_2 + \text{Cr}_2\text{O}_7^{2-} + 2\text{H}^+ \longrightarrow 3\text{SO}_4^{2-} + 2\text{Cr}^{3+} + \text{H}_2\text{O}$  1
- The solution changes from orange to green. 1
- (b)  $\text{Fe}^{3+} + \text{e}^- \longrightarrow \text{Fe}^{2+}$
- $\text{Zn} \longrightarrow \text{Zn}^{2+} + 2\text{e}^-$  1
- $2\text{Fe}^{3+} + \text{Zn} \longrightarrow 2\text{Fe}^{2+} + \text{Zn}^{2+}$  1
- Zn dissolved / Solution changed from brown green. 1
- (c)  $\text{SO}_4^{2-} + 4\text{H}^+ + 2\text{e}^- \longrightarrow \text{SO}_2 + 2\text{H}_2\text{O}$
- $2\text{Br}^- \longrightarrow \text{Br}_2 + 2\text{e}^-$  1
- $2\text{Br}^- + \text{SO}_4^{2-} + 4\text{H}^+ \longrightarrow \text{SO}_2 + 2\text{H}_2\text{O} + \text{Br}_2$  1
- The solution changed from colourless to brown / colourless gas evolved. 1

The End