CH102 // Spring 2019 Thursday (7 minutes)
Discussion Quiz #9

Name: _____ TF: _____ Time: _____

Cu(*s*) is oxidized to $Cu^{2+}(aq)$ by oxygen gas in a basic solution. *Hint: Remember to balance oxygens using water.*

[$E°_{red}(Cu^{2+}/Cu) = 0.34V$, $E°_{red}(O_2/OH^-) = 0.40V$].

1. (3 points) Write the balanced net chemical reaction in basic media.

$2\ Cu\ (s) + 2\ H_2O\ (l) + O_2\ (g) \rightarrow 2\ Cu^{2+}\ (aq) + 4\ OH^-\ (aq)$

2. (2 points) Calculate $E°_{cell.}$

$E°_{cell} = 0.40 - 0.34 = 0.060V$ **R or W**

$E°_{cell}$ 0.060V

3. (4 points) Write the line notation for this reaction. Be sure to include phases.

Cu (s) | Cu^{2+} (aq) || O_2 (g) | OH^- (aq) | Pt (s)

4. (1 point) For each of the following, circle each relation that must be true.

a. If $Q = 1$, then …

R or W

$E < 0$ $E = 0$ $E > 0$ ***$E^o = E$*** $E > E^o$ $E < E^o$

Friday:

Fe(*s*) is oxidized to $Fe^{2+}(aq)$ by oxygen gas in a basic solution. *Hint: Remember to balance oxygens using water.*

[$E°_{red}(Fe^{2+}/Fe) = -0.44V$, $E°_{red}(O_2/OH^-) = 0.40V$].

1. (3 points) Write the balanced net chemical reaction in basic media:

$2\ Fe\ (s) + 2\ H_2O\ (l) + O_2\ (g) \rightarrow 2\ Fe^{2+}\ (aq) + 4\ OH^-\ (aq)$

2. (2 points) Calculate $E°_{cell.}$

$E°_{cell} = 0.40 - (-0.44) = 0.84V$ **R or W**

$E°_{cell}\ 0.84V$ V

3. (4 points) Write the line notation for this reaction. Be sure to include phases.

$Fe\ (s) \mid Fe^{2+}\ (aq) \parallel O_2\ (g) \mid OH^-\ (aq) \mid Pt\ (s)$

4. (1 point) For each of the following, circle each relation that must be true.

b. If $Q = 1$, then **R or W** …

$E < 0$ $E = 0$ $E > 0$ ***$E° = E$*** $E > E°$ $E < E°$