

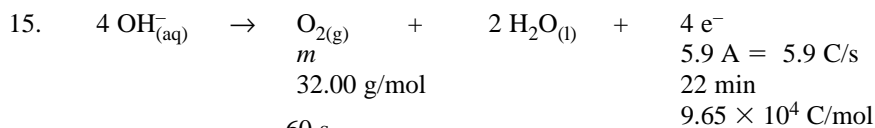
## CHAPTER 10 SELF-QUIZ

(Page 759)

1. True
2. False: Reduction occurs at the ~~anode~~ *cathode* and oxidation occurs at the ~~cathode~~ *anode* in an electrolytic cell.
3. False: Electrolytic cells generally have a single electrolyte ~~so they are really half cells with the power supply serving as the other half cell~~ but they have oxidation and reduction processes occurring at two electrodes so they are complete cells. The power supply creates a potential difference to drive the reaction.
4. True
5. True
6. True
7. False: If you want to deposit twice a given mass of silver in an electrolytic cell, then you must *either* use twice the current ~~for~~ or double the time.
8. (c)
9. (a)
10. (b)
11. (d)
12. (b)
13. (c)
14. (c)
15. (a)
16. (d)

### Worked Solutions:

11.  $[(-0.76) - (+1.07)] \text{ V} = -1.83 \text{ V}$  (d)



$$t = 22 \cancel{\text{min}} \times \frac{60 \text{ s}}{1 \cancel{\text{min}}}$$

$$t = 1.3 \times 10^3 \text{ s}$$

$$n_{\text{e}^-} = \frac{q}{F}$$

$$n_{\text{e}^-} = \frac{It}{F}$$

$$= \frac{5.9 \frac{\text{C}}{\text{s}} \times 1.3 \times 10^3 \cancel{\text{s}}}{9.65 \times 10^4 \frac{\text{C}}{\text{mol}}}$$

$$n_{\text{e}^-} = 0.081 \text{ mol}$$

$$n_{\text{O}_2} = 0.081 \cancel{\text{mol e}^-} \times \frac{1 \text{ mol O}_2}{4 \cancel{\text{mol e}^-}}$$

$$n_{\text{O}_2} = 0.020 \text{ mol}$$

$$m_{\text{O}_2} = 0.020 \cancel{\text{mol}} \times 32.00 \frac{\text{g}}{\cancel{\text{mol}}}$$

$$m_{\text{O}_2} = 0.65 \text{ g} \quad (\text{a})$$