

Final Exam Equation Sheet

$$R = 0.08206 \text{ L-atm/mol-K}$$

$$T (\text{Kelvin}) = ^\circ\text{C} + 273.15$$

$$E = E^0 - \frac{0.0257 \text{ V}}{n} \ln Q \quad \text{at } 25^\circ\text{C}$$

$$E^0 = (0.0257/n) \ln K$$

$$\text{Volts (V)} = 1 \text{ J/C}$$

$$\text{Amps (A)} = \text{C/s}$$

$$F = 96,485 \text{ C/mol}$$

$$\Delta G^0 = -nFE$$

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$$\Delta G = \Delta G^0 + RT \ln Q$$

$$\Delta G^0 = -RT \ln K$$

$$\Delta G = \Delta H - T\Delta S$$

$$\Delta G^0 = \Delta H^0 - T\Delta S^0$$

$$R = 8.314 \text{ J/mol-K}$$

$$\text{pH} = -\log([\text{H}_3\text{O}^+])$$

$$\text{pH} = \text{pK}_a + \log \frac{[\text{conjugate base}]}{[\text{acid}]}$$

$$K_w \text{ at } 25^\circ\text{C} = 1.00 \times 10^{-14}$$

$$K_w = K_a \times K_b$$

*any K_a , K_b , K_f or K_{sp} will be given in the problem