

Dr. Vanden Bout CH302 Spring 2011 Exam 4 Formula Sheet

$$N_A = 6.022 \times 10^{23} \text{ mol}^{-1}$$

$$1 \text{ amu} = 1.66054 \times 10^{-27} \text{ kg}$$

$$c = 3 \times 10^8 \text{ m} \cdot \text{s}^{-1}$$

$$m_e = 9.10939 \times 10^{-31} \text{ kg}$$

$$m_e = 5.485 \times 10^{-4} \text{ amu}$$

$$m_n = 1.67493 \times 10^{-27} \text{ kg}$$

$$m_n = 1.00866 \text{ amu}$$

$$m_p = 1.67262 \times 10^{-27} \text{ kg}$$

$$m_p = 1.00728 \text{ amu}$$

$$\Delta E = \Delta mc^2$$

$$E = mc^2$$

$$1 \text{ Joule} = 1 \text{ kg} \cdot \text{m}^2 \cdot \text{s}^{-2}$$

$$\frac{-1}{a} \frac{d[A]}{dt} = k[A]$$

$$[A] = [A]_0 \exp[-kt]$$

$$\ln[A] = -kt + \ln[A]_0$$

$$t_{1/2} = \frac{\ln(2)}{k} = \frac{0.693}{k}$$