

Chem. 452, 70 pts.

SP/2000

EXAM 3

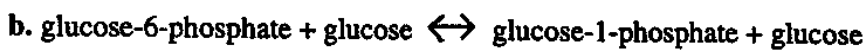
NAME KEY

1. What is the direction and ΔG° of each of the following coupled reactions if the products and reactants are under standard concentrations? (see standard ΔG° table at the back) (8)

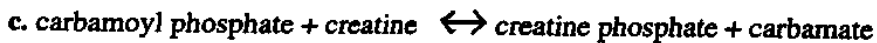
DIRECTION (right or left)/ ΔG°



left, +26.5



left, +7.1



right, -11.2



left, +26.5 or
+31.7

2. Which reaction above in (1) would have the largest K_{eq} ? (3)

- a. b. c. d. e. you can't tell

3. Which reaction in (1) would reach equilibrium the slowest? (3)

- a. b. c. d. e. you can't tell

4. What is the $\Delta G'$ of hydrolysis of ATP under realistic cellular conditions where $[\text{ATP}] = 7.9 \times 10^{-3} \text{ M}$, $[\text{ADP}] = 1.04 \times 10^{-3} \text{ M}$, $[\text{Pi}] = 7.9 \times 10^{-3} \text{ M}$? AS ALWAYS, SHOW WORK (5)

ASSUME
37°C