

Assignment #4 DUE FRIDAY November 30th, 2012 at 5pm

Lungs and Diffusion

- 1. With reference to Fick's Law of diffusion, how does the human respiratory system maximize gas diffusion? (Note: There is at least 1 way for each term in the equation.) (4 marks)**
- 2. What is emphysema? Does it severely affect gas exchange in the lungs? If so, then how? If not, then why not? (4 marks)**
- 3. What is asthma? Does it severely affect gas exchange in the lungs? If so, then how? If not, then why not? (4 marks)**
- 4. How do the lungs remain inflated even after expiration (use basic physics to describe). (2 marks)**
- 5. What clinical condition describes deflation of a lung? How does this condition change the physics of normal lung function? (2 marks)**
- 6. What is a surfactant? What does it do at an air-liquid interface? What is the role of surfactants in the lung? (4 marks)**