ASSIGNMENT 5 CHEMISTRY 300

Due: 4:30 pm Wednesday 25 October 2006

- 1. Do question 10 on page 852 of the text.
- 2. Do queston 14 on page 853 of the text.
- 3. Consider a 25 m² wall of a house. This wall consists of a 1.00 cm thick layer of plaster, a 9.00 cm thick fibreglass batt, and a 10.00 cm brick facing. The thermal conductivity of fibreglass is 4.6×10^{-2} W m⁻¹ K⁻¹ and of brick is 0.60 W m⁻¹ K⁻¹. It may be assumed that plaster has the same thermal conductivity as brick. The exterior temperature is 0°C and the interior temperature is 20 °C. The thermal resistance of the stude, the vapour barrier, and sheathing have been ignored.
 - (a) What is the rate of heat loss through the wall in watts?
 - (b) What are the temperatures at the interfaces (i) between the plaster and the fibreglass and (ii) between the fibreglass and the brick?