

# Chemistry 2720 Fall 2003 Quiz 1

Name: \_\_\_\_\_

The normal freezing point of eicosane (the straight-chain alkane  $C_{20}H_{42}$ , molar mass 282.56 g/mol) is 310 K, and its heat of fusion at this temperature is 69.1 kJ/mol. The heat capacities of the solid and liquid are, respectively, 602.5 and 664 J K<sup>-1</sup> mol<sup>-1</sup>. Eicosane is a wax which doesn't dissolve in water. 150 g of eicosane is warmed to 55°C. It is then poured into 400 g of water initially at 20°C. The heat capacity of water is 4.184 J K<sup>-1</sup> g<sup>-1</sup>. Describe the final state of the system.

To convert degrees Celsius to Kelvin, add 273.15.