

Quiz 2

Chemistry 1120

26 September 2014

Name: _____

Show ALL work.

1. Combine the following data and estimate the K_c for the reaction, $C(\text{diamond}) = C(\text{graphite})$, at 298 K.

$$\Delta H_f^\circ(\text{graphite}) = 0 \text{ kJ/mol}$$

$$S^\circ(\text{graphite}) = 5.74 \text{ J/(K mol)}$$

$$\Delta H_f^\circ(\text{diamond}) = 1.90 \text{ kJ/mol}$$

$$S^\circ(\text{diamond}) = 2.38 \text{ J/(K mol)}$$

2. Estimate the vapor pressure of H_2O at 54°C , if the $\Delta H_{\text{vap}} = 40.7 \text{ kJ/mole}$ at the normal boiling temperature, 373 K.

3. Calculate the vapor pressure of a solution prepared by dissolving 25.2 g of naphthalene, $C_{10}H_8$, (a nonvolatile, nonelectrolyte), in 140.0 g of benzene, C_6H_6 , at 25.0°C ? (The vapor pressure of pure benzene is 74.6 torr at this temperature.)

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