

King Saud University

Petroleum and Natural Gas Engineering

PGE 362: **Properties of Reservoir Fluids**

Due: **Sunday, April 30, 2017**

Homework five

Q1 An ideal solution system consists of one mole of **n-propane** and one mole of **n-butane** is heated to 100° F.

Calculate the following;

1. Dew point pressure.
2. Composition of the liquid at the dew point pressure.
3. Bubble point pressure.
4. Composition of vapor at the bubble point pressure.
5. Composition of the liquid and the vapor if the system pressure is **100** psia.
6. Plot the composition of **n-propane** on the x-axis versus the pressure on the y-axis.

Repeat the calculations assuming the system is **non-ideal** and compare the results by plotting the **ideal** and **non-ideal** cases on the same graph and comment on the graph.

Q2 Using the equilibrium constant figure for **n-hexane**, do the following;

1. Plot log K versus log P at 50° F, 150° F, and 250° F (P=6, 10, 20, 50, 100, and 600 psia)
2. Plot log K versus log P at the same temperature and pressure assuming ideal solution behaviour.
3. Comment on the plots you obtained