

King Saud University

Petroleum and Natural Gas Engineering

PGE 362: **Properties of Reservoir Fluids**

Due: **Tuesday, March 21st, 2017**

Homework three

According to Tutorial-2 and Tutorial-4, the pressure values of CO₂ and N₂ were calculated at different volumes range from 22.4 L to 0.05 L by applying both the ideal gas law and the Van der Waals equation at 0 °C. The ideal and the actual volumes were used to estimate the compressibility factor for the two gases.

Your task is to do the following

1. Repeat those calculations for the two gases at 100 °C.
2. Compare the results by plotting the compressibility factor versus pressure for CO₂ and N₂ at 0 °C and 100 °C in the same plot.
3. Comment on the results and the plot.