CHE 115 Unit IV Practice

1 5 mol of ideal gas at 1.0 atm and constant T is expanded from 10L to 15L. Calculate P final. ***Answer 0.67 atm.***

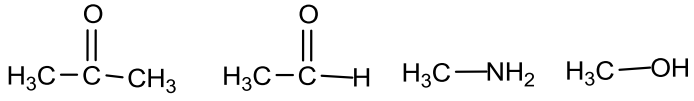
2 50.75 g of ideal gas occupies 10L at STP. What volume in L will 129.3g occupy at STP? ***Answer 25.5 L***

3 Balloon has volume of 4.39 L at 44C and 729 torr. What temp. must it be cooled to in order to reach the volume to 3.78L? Assume constant P
Answer 0 degrees C

4 A 325 mL container of an ideal gas has pressure of 695 torr at 19 degrees C. How many moles of gas are there? ***Answer 1.24 x10^{-2} moles.***

5 $2NaN_3 \rightarrow 2Na + 3N_{2(g)}$ What mass in grams of NaN_3 is required to produce 40 L of N_2 at 25 degrees C and 763 torr? ***Answer 71.1 grams.***

6 Mixture of He and Ne has total pressure of 0.95 atm. It contains.32 moles of He and 0.56 moles of Ne. What is the partial pressure of Ne?
Answer 0.60 atm

7 
Which of the above molecules can undergo intermolecular H bonding?

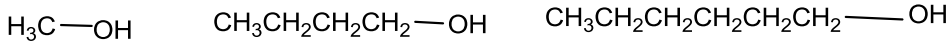
8 53.2 kJ of heat are added to a 15.5 grams of ice at -5 degrees C. What is the final state and temperature? ***Answer vapor at 323 degrees C.***

9 What amount of energy is required to convert 1.0 mole of ice at -50 degrees C to liquid water at 70 degrees C?
Answer 13.16 kJ

10 Classify the following as either natural or synthetic polymers.
polyester, silk, nylon, starch, Kevlar, cellulose, rayon.

11 Which of the following is the most soluble in water?
Which is most soluble in hexane $CH_3CH_2CH_2CH_2CH_2CH_3$?

A B C



12 What is the conc. (molal) when 21.1 grams of KBr are dissolved in 897 grams of water?
Answer 0.198 molal.

13 Vapor pressure of pure water is 23.8 torr. What is VP of a solution made by dissolving 18 grams of glucose (Mw= 180 g/mole) in 95 grams of water? ***Answer 23.4 torr.***

14 What is the FP of a .055 molal soln of glucose? ***Answer -0.1023 degrees C***
What is FP of a .055 molal soln of $NaNO_3$? ***Answer -0.2046 degrees C***

molal FP constant for water is 1.86 degrees C /molal.