

Exam IV CHM 1045C

Name _____

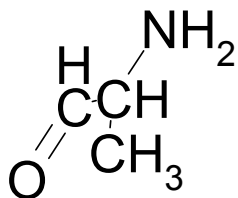
I. General Knowledge:

1. A person applying cologne in the back of a lecture hall is detected almost immediately by the instructor in the front of the class. Explain, in terms of Kinetic Molecular Theory.

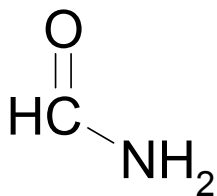
2. van der Waal's equation accounts for what deviations from ideal behavior?

3. Water evaporates from a glass at normal room temperature. Why?

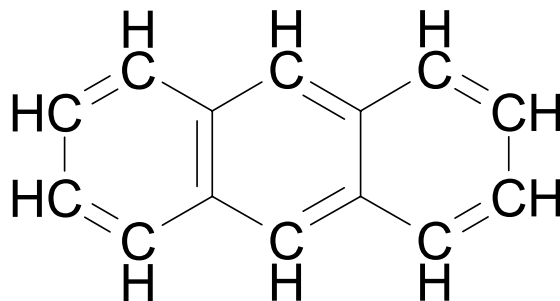
7. Arrange the following substances in order of increasing melting points. Explain your reasoning.



Molecular Weight =73.10
Molecular Formula =C₃H₇NO



Molecular Weight =45.04
Molecular Formula =CH₃NO



Molecular Weight =178.24
Molecular Formula =C₁₄H₁₀

II. Calculate:

1. A 10.0 L gas cylinder contains three gases. 3.0 moles of Ar, 2.5 moles of Ne, and an unknown quantity of a contaminant. The pressure of gas in the cylinder is 12.5 atm at room temp (25.0 C).

a) How many moles of the contaminant are present?

b) What is the partial pressure of the contaminant?

2. A can of beanie weenies is placed, unopened, on an open fire(Temp roughly 2700 C). At room temp, 2.0 ml of air are present. The pressure in the unopened can was .98 atm. Assuming that the can doesn't explode, what is the pressure of gas in the can while it is in the fire?

3. You are on a deserted island and need a barometer to predict tropical storms. The most dense fluid on the island is honey. How long will the tube need to be to read atmospheric pressure? (It may be useful to know that d_{Honey} is 4.5 g/ml, and d_{Hg} is 13.7 g/ml)

4. Consider the phase diagram below.

a) What phase(s) are/is present at 25 atm and 70 C?

b) Label pertinent features

