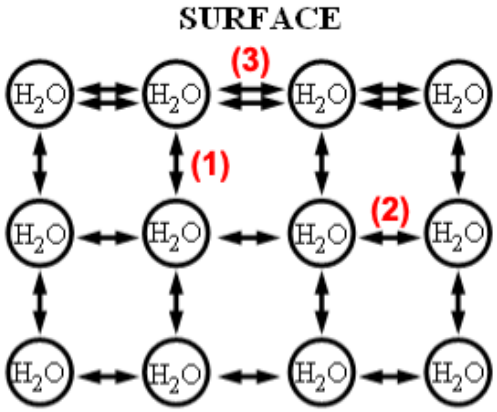
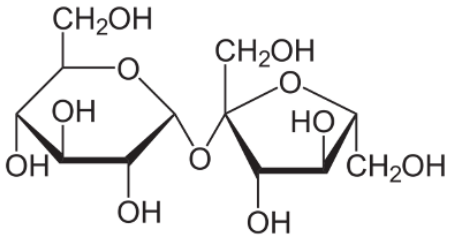
CHEM 1032 – Week 2 Questions

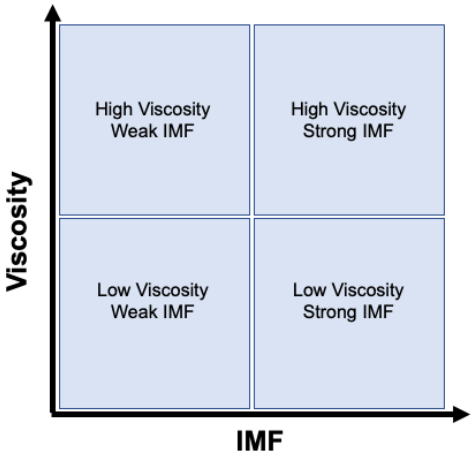
1. Put the interactions in order from strongest to weakest…



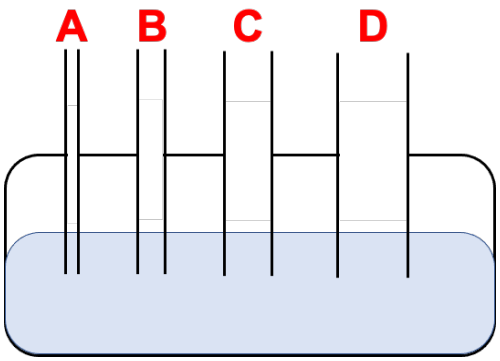
a. (1) > (2) > (3)
b. (2) > (1) > (3)
c. (3) > (1) > (2)
d. (3) > (2) > (1)

2. This is a molecule of sucrose, the primary sugar component of maple syrup. Select where sucrose belongs on the plot.

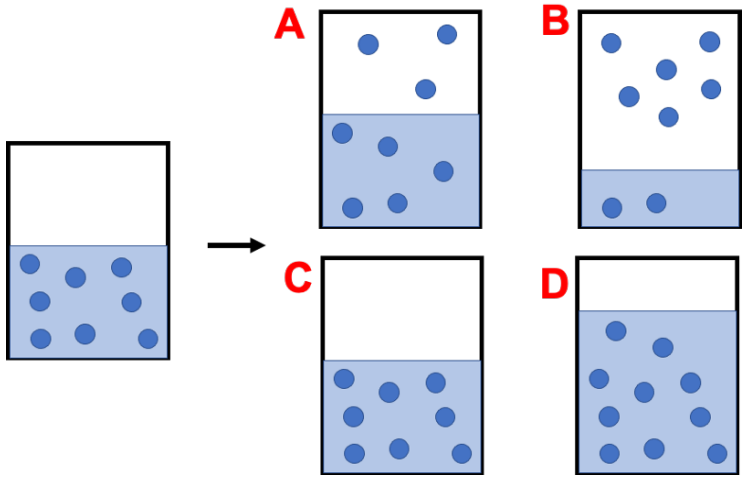




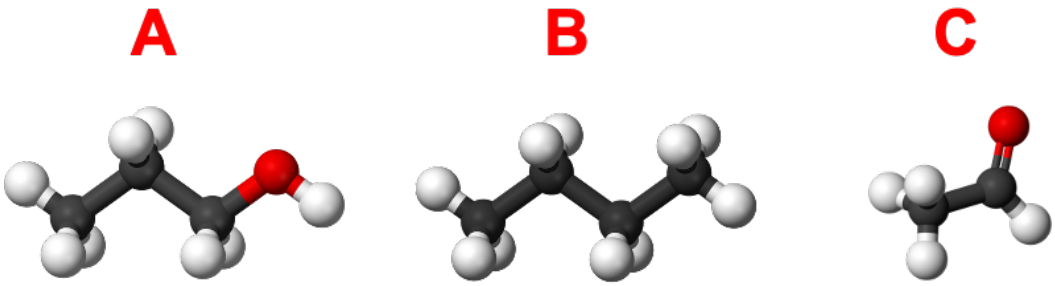
3. Which tube will have the highest liquid height once capillary action occurs?



4. Water is placed in a container, all of the gas molecules above the liquid are removed, and then the container is sealed. Which image shows what the container would look like after some time?

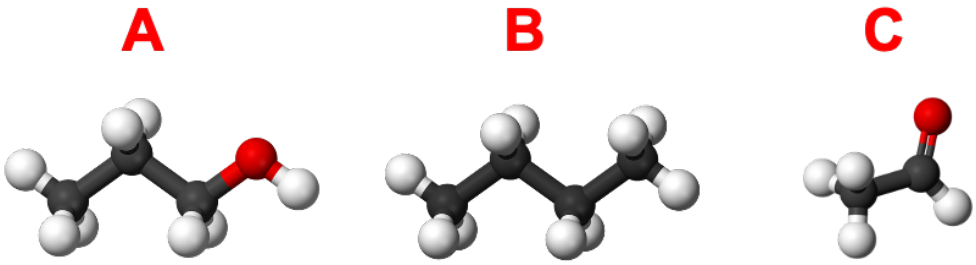


5. Which molecule would you expect to have the highest P_{vap} at room temperature?



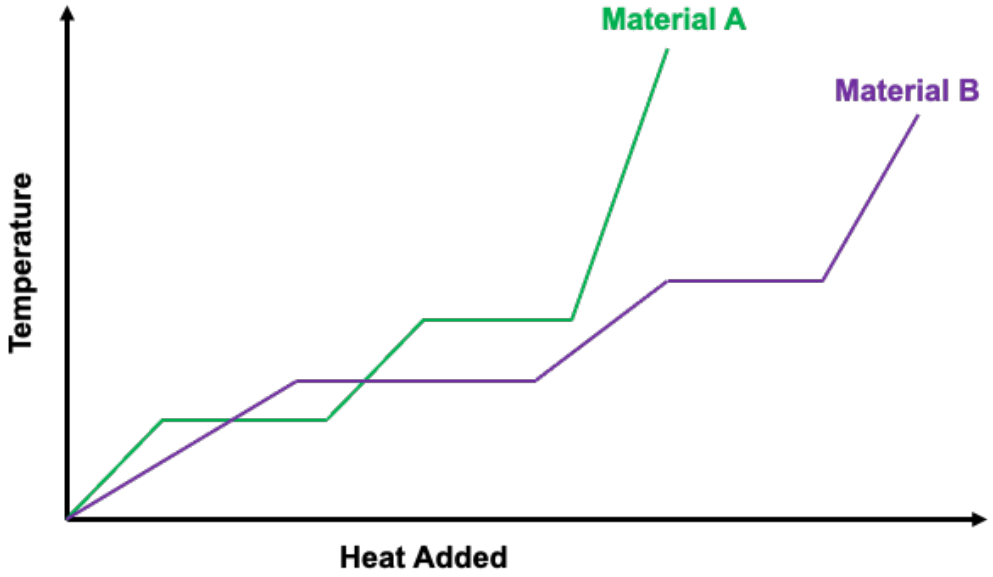
6. If 25.0 g of $CH_3HC{=}O$ were at the normal boiling point (20.2 ^oC), how much energy is required to completely transform the liquid to gas if ΔH_{vap} is 25.76 kJ/mol?

7. We now know the ΔH_{vap} for molecule C is 25.76 kJ/mol. Which molecule A or B will have a lower ΔH_{vap} ?

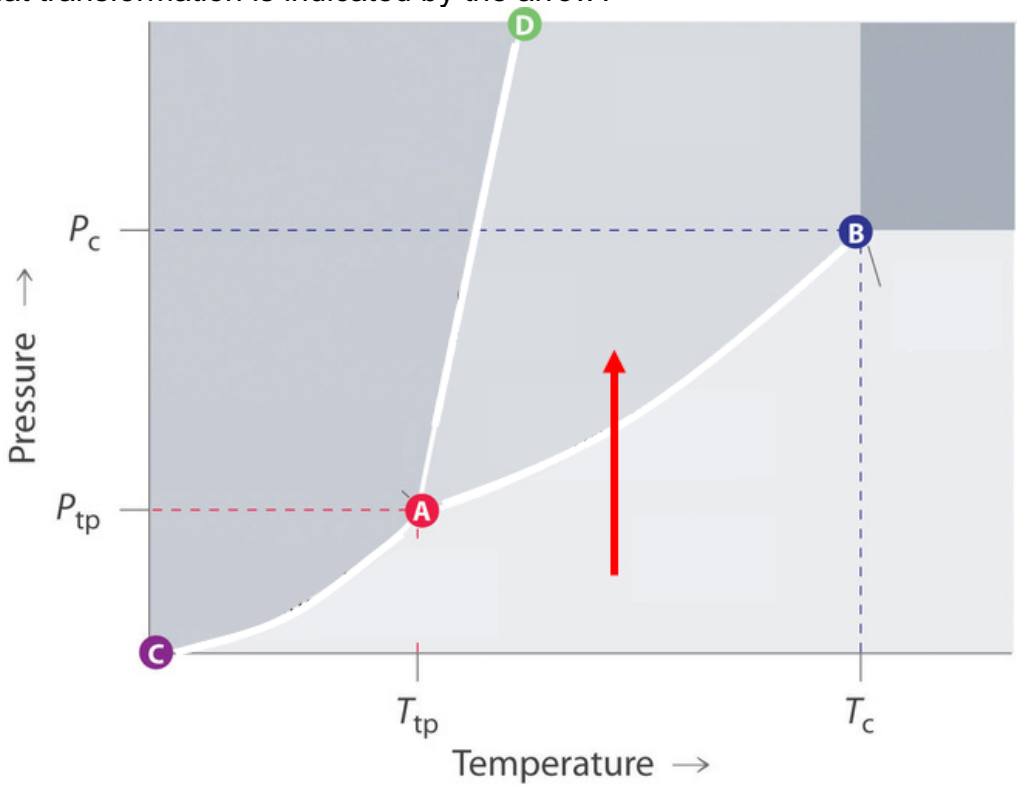


8. We just saw that the normal boiling point of $CH_3HC{=}O$ is 20.2 ^oC and ΔH_{vap} is 25.76 kJ/mol. What would the external pressure need to be for the boiling point to increase by 10 ^oC?

9. Which curve do you think goes with the molecule with weaker IMF?



10. What transformation is indicated by the arrow?



11. Using the curve and the data table determine the amount of energy needed to heat 1.00 g of ethanol (CH_3CH_2OH) from 0 to 100 °C.