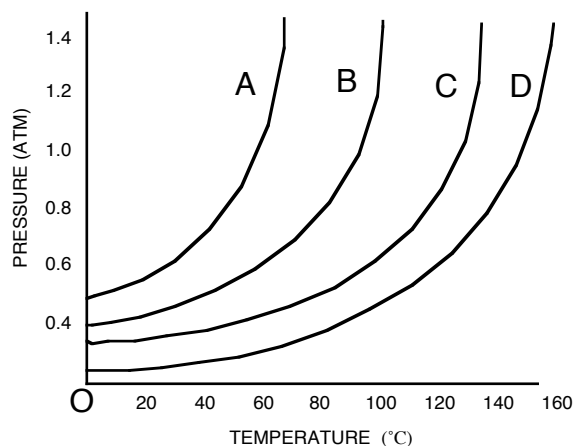
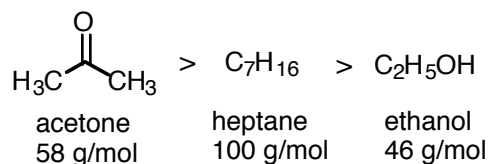


1. Which **one** of the following statements is **FALSE** for the vapor pressure/temperature diagram shown:



- the vapor pressure for A at 20° is about 0.55 atm
 - substance D has the **weakest** binding forces
 - the normal boiling point for C is about 125°
 - to achieve a vapor pressure of 0.6 atm, substance D must be heated to about 125°C
2. At room temperature, the vapor pressure pattern is acetone > heptane > ethanol. Which **one** of the following statements is **TRUE**:



- a substance with lower vapor pressure is held together by weaker binding forces
 - ethanol has the lowest vapor pressure, and London force explains why
 - The heaviest molecular has the highest vapor pressure, as is always true.
 - Acetone, which is polar and has some dipole-dipole interaction, has higher vapor pressure than heptane, even though heptane is nonpolar. Apparently the added London dispersion force in heptane is enough to “win” over the dipole-dipole interaction in acetone.
3. Predict which of the following liquid/temperature scenarios would have the **LOWEST** vapor pressure and the **HIGHEST** surface tension?
- C_6H_{14} at 275 K
 - C_6H_{14} at 299 K
 - C_5H_{12} at 299 K
 - $\text{HOC}_4\text{H}_8\text{OH}$ at 299 K
 - $\text{HOC}_4\text{H}_8\text{OH}$ at 275 K

Note: There is a back side, too!

4. Which one statement is FALSE regarding the normal boiling point for a liquid?
- The normal boiling point always refers to when pressure equals one atmosphere.
 - A molecule with stronger intermolecular force will boil at a lower temperature than a molecule with weaker intermolecular force.
 - Boiling occurs when vapor pressure of escaping gas equals the external pressure.
 - When external pressure increases, the boiling point temperature also increases
5. Which one of the following substances would be the most soluble in water?
- $\text{CH}_3\text{CH}_2\text{CH}_2\text{Cl}$
 - $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
 - $\text{CH}_3\text{CH}_2\text{NH}_2$
 - $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
6. Which relationship is true for solubility in water?
- $\text{C}_6\text{H}_{14} > \text{NaCl}$
 - $\text{C}_{11}\text{H}_{23}\text{NH}_2 > \text{C}_3\text{H}_7\text{NH}_2$
 - $\text{LiNO}_3 > \text{CHCl}_3$
 - $\text{CH}_3\text{CCl}_3 > \text{CH}_3\text{CH}_2\text{OH}$
7. Which one of the following 0.1 M aqueous solutions would have the lowest melting/freezing point?
- CH_3OH
 - MgSO_4
 - FeCl_3
 - $\text{C}_6\text{H}_{12}\text{O}_6$