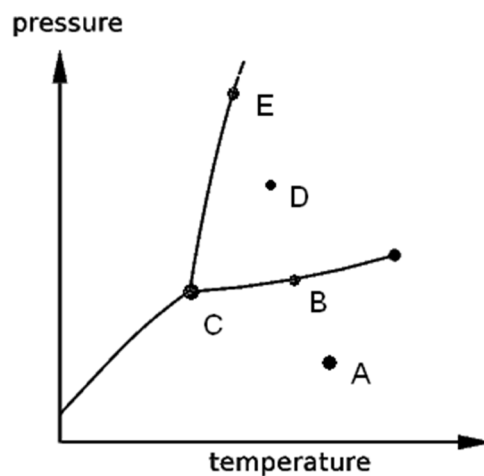


IMFs, Properties of Solids, Liquids, and Gases Review

1. What are intermolecular forces?
2. Fill in the blanks: The **stronger** the intermolecular forces between the particles,
 - (a) The _____ the melting point.
 - (b) The _____ the boiling point.
 - (c) The _____ the vapor pressure
 - (d) The _____ the viscosity
 - (e) The _____ the surface tension
3. Explain the following phenomena in terms of intermolecular forces.
 - (a) Water has a greater surface tension than rubbing alcohol.
 - (b) Water has a higher viscosity than pentane.
 - (c) HF has a higher boiling point than HCl
 - (d) Pentane has a higher vapor pressure than octane.

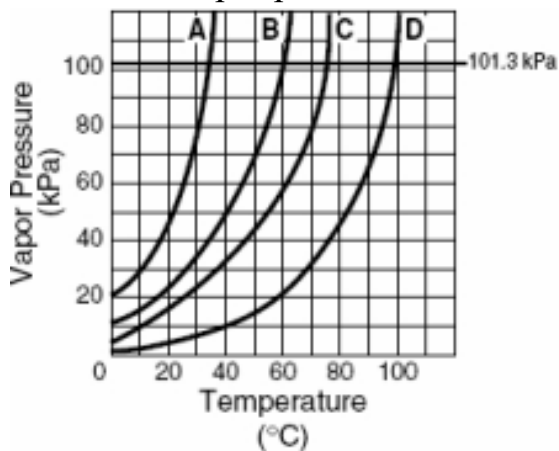
4. For the phase diagram at the right, name the phase or phases that exist at each of the lettered points.

- (A) _____ (D) _____
(B) _____ (E) _____
(C) _____



5. Referring to the phase diagram in the question above, what change or changes would occur if one
 - (a) started at point A and raised the pressure?
 - (b) started at point B and raised the temperature?

6. Use the vapor pressure curve below to answer the following questions



a. What does 101.3 kPa represent?

b. What is represented by when the vapor pressure curves (A, B, C, D) cross with the line labelled 101.3 kPa?

c. Rank the liquids in order of increasing strength of intermolecular forces. How do you know this?

7. **Sketch and label a phase diagram** for the substance with the following properties.

- normal melting point: -17 C
- normal boiling point: 57 C
- triple point: -22 C and 0.26 atm
- critical point: 220 C and 1.84 atm

8. **Sketch and label a heating curve** for the substance above at 1 atm of pressure.