1. Evaporation is the change of
   C) a liquid into the gas phase.

2. Evaporation of a liquid is a cooling process:
   C) the higher energy liquid molecules escape, leaving the lower energy molecules behind.

3. Wetting the cloth cover of your canteen on a hot day is
   B) a good idea; the evaporating water cools the cloth, the canteen, and the water inside it.

4. It is not possible for a solid substance to change directly to the gas phase.
   B) False; the process is called sublimation, and can be seen when dry ice “smokes” as it evaporates.

5. Regelation occurs when a
   C) solid melts under pressure, then refreezes.

6. Condensation is a warming process:
   D) the lower energy gas molecules collide with and stick to a cooler surface. The gas molecules left behind have a higher average energy and temperature.

7. When a water droplet condenses on the side of your Coke can,
   C) it adds energy to the can, warming it up.

8. As you continuously add heat to a pan of water on the stove, the water temperature
   B) rises to 100°C. Any additional heat will cause the water to boil, as the energy is used to change the phase, not raise the temperature.

9. A pan of water in Flagstaff, Arizona (at 7800 ft above sea level) boils
   B) at a lower temperature than a pan of water in Ocean Shores.

10. Energy is absorbed by a substance when the phase changes
    C) from solid to liquid or from liquid to gas.

11. Energy is given up or released by a substance when the phase changes
    B) from gas to liquid or from liquid to solid.

12. As energy is added to a solid block of ice,
    A) it will melt completely before its temperature can begin to rise.

13. Why is the latent heat of vaporization for water (540 cal/g) so much larger than the latent heat of fusion for water (80 cal/g)?
    B) To change from the liquid to gas phase, energy is required to break the bonds between water molecules. Then more energy is required to overcome surface tension as the water molecules jump off the surface.

14. Latent heat of fusion is the amount of energy required
    A) to completely change the phase of 1g of a substance from liquid to solid.
    B) to completely change the phase of 1g of a substance from solid to liquid.
    C) to completely change the phase of 1g of a substance from liquid to gas.
    D) either A or B is correct; the phase change can be in either direction.

15. Latent heat of vaporization is the amount of energy required
    C) to completely change the phase of 1g of a substance from liquid to gas.

16. More energy is required to solidify 1g of liquid water than to vaporize it.
    C) False; it takes 540 calories to vaporize the water, vs. 80 calories to solidify it.

17. Adding 100 calories of heat to 1g of solid ice at 0°C results in
    C) liquid water at 20°C.

18. How much total heat is necessary to completely vaporize 1g of ice initially at 0°C?
    A) 80 calories.        B) 100 calories.        C) 540 calories.        D) 720 calories.