1. Oil and water don't mix because _____.

(A) an oil's covalent bonds cannot be broken by water molecules
(B) water's polar covalent bonds cannot be y oil's London dispersion forces
(C) water's polar covalent bonds cannot be broken by oil's covalent bonds
(D) water's hydrogen bonds cannot be broken by oil's London dispersion forces

2. Micelles are formed by _____.

(A) the non-polar tails of soap molecules
(B) the polar heads of soap molecules
(C) tiny drops of oil molecules
(D) bits of oily dirt being trapped inside pockets of oil molecules

3. Viscosity is higher in motor oil than water because _____.

(A) oil has more London dispersion forces than water
(B) the total strength of oil's London dispersion forces is greater than the total strength of water's hydrogen bonds
(C) the total strength of oil's covalent bonds is stronger than the total strength of water's polar covalent bonds
(D) oil's long hydrogen chains exert more mechanical friction that water molecules

4. Surface tension results from _____.

(A) air pressure on the surface of water
(B) the gravitational pull on water molecules at the surface
(C) the absence of hydrogen bonds above water molecules at the surface
(D) the outward pressure exerted by the kinetic energy of water molecules

5. Strong surface tension allows _____.

(A) Gerris bugs to stand on water
(B) airplanes with pontoons to rest on the surface of a lake
(C) soap bubbles to form
(D) beads of water to form on waterproof surfaces

6. Soap breaks up surface tension by _____.

(A) lying flat on the surface of water and separating water molecules
(B) using their heads to separate water molecules at the surface
(C) using their tails to separate water molecules at the surface
(D) forming micelles to separate water molecules at the surface

7. Ice is less dense than water because _____.

(A) the same number of frozen water molecules occupy less space than liquid water molecules
(B) water released its heat of fusion during the freezing process
(C) six-sided ice crystals are hollow
(D) water molecules lose a small amount of mass in the process of freezing

8. Most of the volume of an iceberg is below water because _____.

(A) the weight of the ice above and below the water weighs the same as the water displaced
(B) the weight of the ice below water weighs more than the water displaced
(C) the volume of the ice below water equals the volume of water displaced
(D) ice is less dense than water

9. Things that increase the upward buoyancy force of water include _____.

(A) heating the water
(B) adding salt to the water
(C) lowering the air pressure over the water
(D) adding air to the water

10. Water density increases _____.

(A) from about 2 miles below to the surface of the ocean to the bottom of the ocean
(B) when water is heated from 0° Celsius to 4° Celsius
(C) when water is cooled from 4° Celsius to 0° Celsius
(D) soap is added

11. Strong intermolecular bonding suggests _____.

(A) polar molecules, low boiling points, crystal solids
(B) ionic molecules, high boiling points, soluble in water
(C) hydrophobic compounds, high density, high density
(D) high viscosity, small non-polar compounds, low freezing point