

Name: _____

Kinetic Theory Test #1

Multiple Choice

- ___ 1. The kinetic theory implies that oxygen molecules at 10 C would have the _____ average kinetic energy as hydrogen molecules at 10 C. (1) higher; (2) lower; (3) the same.
- ___ 2. The temperature at which all molecular motion should cease is (1) -273 C; (2) -454 C; (3) 0 K; (4) both (1) and (3); (5) both (2) and (1).
- ___ 3. A ___ particle has a vibratory motion and the point about which the vibrations occurs seems to shift as one particle slips past another. (1) liquid; (2) gas; (3) solid; (4) plasma.
- ___ 4. A ___ particle seems to vibrate around a fixed point. (1) liquid; (2) gas; (3) solid; (4) plasma.
- ___ 5. The ___ state is composed of electrons and positive ions. (1) liquid; (2) gas; (3) solid; (4) plasma.
- ___ 6. The pressure in mbars which is equivalent to 750 mm Hg is (1) 1013; (2) 1000; (3) 986; (4) 800.
- ___ 7. The ratio of the speed of helium atoms to oxygen molecules if both gases are at the same temperature is (1) 2.82; (2) .355; (3) 2; (4) .5
- ___ 8. A 12 liter sample of hydrogen at a pressure of 760 mm Hg is transferred to a new container. The pressure after the transfer is 700 mm Hg. What is the volume of the new container if the temperature remains constant? (1) 10.74 l; (2) 13.41l; (3) 11.05 l; (4) 13.03l.
- ___ 9. A 12 liter sample of helium at a temperature of 25 C is transferred to a 10 liter container. What is the resultant temperature after the transfer if the pressure remains constant? (1) -20 C; (2) 91 C; (3) -25 C; (4) 80 C.
- ___ 10. A 20 liter sample of the element which spells danger to Superman is at a temperature of 30 C and under a pressure of 800 mm Hg. It is transferred to a new container and the temperature rises to 60 C while the pressure changes to 600 mm Hg. What is the volume of the new container? (1) 29.1 l; (2) 16.5 l; (3) 36.6 l; (4) 27.5 l.

Fill in the Blanks

Use terms from the following list to answer questions 1-20 in this section.

- | | |
|-----------------------|------------------------|
| A manometer | K barometer |
| B kelvin | L anhydrous |
| C polymorphous | M deliquescent |
| D anisotropic | N hygroscopic |
| E isomorphous | O amorphous |
| F efflorescent | P crystal |
| G mesomorphic | R surface tension |
| H heat of fusion | S heat of vaporization |
| I sublimation | T metastable |
| J dynamic equilibrium | U real gas |

- ___ 1. In a ___ forces of attraction exist between the particles.
- ___ 2. A ___ compound exhibits a long-lasting amorphous form.
- ___ 3. A (n) ___ crystal has the ability to capture and hold water molecules.
- ___ 4. A (n) ___ substance has two or more crystalline shapes.
- ___ 5. The ___ is the amount of heat required to melt one gram of substance at its melting point.
- ___ 6. ___ is the process of changing directly from a solid to a gas without passing through the liquid phase.
- ___ 7. A (n) ___ is a rigid body in which the constituent particles are arranged in a repeating pattern.
- ___ 8. ___ is the apparent elasticity of a surface and is the result of unequal forces.
- ___ 9. A (n) ___ crystal captures water molecules, dissolves, and forms a water solution.
- ___ 10. ___ substances exist between the solid and liquid states.
- ___ 11. ___ materials exhibit different properties in different directions.
- ___ 12. A (n) ___ compound contains no water of hydration.
- ___ 13. A (n) ___ is an instrument used to measure gas pressure.
- ___ 14. The ___ scale of temperature has absolute zero for its zero point.
- ___ 15. ___ crystals are crystals of different solids which have the same shape.
- ___ 16. A (n) ___ is an instrument used to measure the absolute pressure of the atmosphere directly.
- ___ 17. A (n) ___ crystal has the tendency to release water molecules to the air.
- ___ 18. ___ is a balanced state where a reversible reaction takes place at the same rate in both directions.
- ___ 19. The ___ is the heat required to vaporize one gram of substance at its boiling point.
- ___ 20. A (n) ___ substance is an apparent noncrystalline solid.