

Name _____ Date _____ Period _____

Use the textbook, "Need to know" sheet, class notes and previous homework to help you study for the test

1) Calculations

Conversions: $K = ^\circ C + 273$ $^\circ C = K - 273$

a) What is the temperature of 570 $^\circ C$ and $-15^\circ C$ expressed in Kelvin?

b) What is the temperature 145 K (Kelvin) and 350 K expressed in degree Celsius ($^\circ C$)?

c) Which temperature scale has no negative numbers? _____

d) What is the lowest possible Kelvin temperature _____ Celsius temperature _____

e) The SI unit for temperature is _____, the metric unit for temperature is _____.

2) Wordbank: kinetic theory, absolute zero, intermolecular forces, vapor pressure, vacuum, atmospheric pressure, kinetic energy, gas pressure, condensation, boiling point, normal boiling point, sublimation

a) the pressure above a liquid in a sealed container _____

b) the attractive forces between molecules _____

c) the temperature at which the liquid's vapor pressure is equal to the external pressure _____

d) boiling point of a liquid at standard atmospheric pressure of 101.3 kPa _____

e) the change of a gas or vapor to the liquid state _____

f) a space where no particles of matter exist _____

g) the energy an object has because of its motion _____

h) the force resulting from collisions of gas particles per surface unit of a container wall _____

i) the pressure that results from the collisions of air molecules with objects _____

k) theory that particles of all forms of matter are in constant motion _____

l) The temperature at which all motion of particles should stop _____

m) The change of matter from a solid directly to a gas without becoming a liquid _____

3) a) Explain the three points of the kinetic model of Ideal Gases _____

b) Use the kinetic theory to explain why you can smell an open perfume bottle across the room

c) How do ideal gases differ from real gases

4) **Wordbank: a) gas, b) liquid, c) solid, d) amorphous, e) liquid crystals, f) plasma**

_____ rigid with a definite shape and volume, and its particles are fixed in place.

_____ flowing matter with a definite volume but an indefinite shape, and it takes the shape of the container.

_____ flowing, compressible matter with neither definite volume or shape, which takes the volume of the container.

_____ ionized gas, but electrically neutral because it contains equal amount of free electrons and positive ions, forms at very high temperatures. Most common form of matter in the Universe but least common on Earth

_____ structure in only one or two dimensions, arranged either in layers or parallel lines (used in LCD)

_____ solids with disjointed and incomplete crystal lattice (e.g. wax, rubber, plastic, asphalt, glass)

5) Define

Sublimation _____

Condensation _____

Volatile liquids _____

Vaporization _____

Evaporation _____

Boiling _____

6) Explain why a liquid cools down during evaporation _____

7) Describe the movement of

a) gas particles _____

b) molecules in a liquid _____

c) particles in a solid _____

8) Explain “perfectly elastic collisions”. _____

9) a) When the temperature in a closed container increases its average kinetic energy _____

b) When the temperature in a closed container increases its vapor pressure _____

c) Kelvin temperature directly relates to average kinetic energy.

When the Kelvin temperature doubles, the average kinetic energy _____

When the Kelvin temperature decreases by half, the average kinetic energy _____

