

Gas Questions- Set I

1. Use the Kinetic Molecular Theory answer the following questions:

(a) How does a gas exert pressure?

(b) List three things that can be done to a sample of gas that serves to increase its pressure.

(c) What is an ideal gas? What is a real gas?

(d) Why are collisions between gas molecules are considered to be elastic?

(e) Why are gases so compressible?

(f) Why do gases have low densities?

(g) Why do gas diffuse (i.e. spread out) so readily?

2. Complete the following pressure conversions:

1.5 atm = _____ mm Hg

700 torr = _____ mm Hg

950 mm Hg = _____ atm

2.5 atm = _____ psi

750 mm Hg = _____ kPa

200 kPa = _____ atm

3. What device is used to measure atmospheric pressure?

4. To the left arm of a manometer a sample of helium is attached; to the right arm a sample of oxygen gas. The helium sample exerts a pressure of 800 mm Hg, while the oxygen sample exerts a pressure of 740 mm Hg. Sketch a diagram that represents this apparatus.

5. What four parameters describe the state of a gas? What units are used for each?

1)

2)

3)

4)

6. Convert the following temperatures:

(a) normal body temperature is $37^{\circ}\text{C} = \underline{\hspace{2cm}}$ K

(b) water boils at $373\text{ K} = \underline{\hspace{2cm}}$ $^{\circ}\text{C}$

(c) The boiling point of liquid N_2 is $-196^{\circ}\text{C} = \underline{\hspace{2cm}}$ K

(d) Gold melts at $1337\text{ K} = \underline{\hspace{2cm}}$ $^{\circ}\text{C}$