

Unit 2 – Review

- 1) What is the atmosphere?
- 2) What organism helped to create a livable environment? How did they do it?
- 3) What are the five most abundant gases in the atmosphere?
- 4) Name five scientists who have contributed to the topic of pressure.
- 5) Convert the following:
 - a) Convert 0.875 atm to mmHg
 - b) Convert 745.0 mmHg to atm
 - c) Convert 0.955 atm to kPa
 - d) Convert 98.35 kPa to atm
 - e) Convert 740.0 mmHg to kPa
 - f) Convert 99.25 kPa to mmHg
 - g) Convert 3.5 atm to psi
 - h) Convert 0.65psi to kPa
- 6) A gas occupies 1.56 L at 1.00 atm. What will be the volume of this gas if the pressure becomes 3.00 atm?
- 7) 500.0 mL of a gas is collected at 745.0 mm Hg. What will the volume be at standard pressure?
- 8) 300 mL of O₂ are collected at a pressure of 645 mm of mercury. What volume will this gas have at one atmosphere pressure?
- 9) 600.0 mL of air is at 20.0 °C. What is the volume at 60.0 °C?
- 10) A gas occupies 1.00 L at standard temperature. What is the volume at 333.0 °C?
- 14) At 210.0 °C a gas has a volume of 8.00 L. What is the volume of this gas at -23.0 °C?
- 15) A gas syringe contains 56.05 milliliters of a gas at 315.1 K. Determine the volume that the gas will occupy if the temperature is increased to 380.5 K
- 16) If 15.0 liters of neon at 25.0 °C is allowed to expand to 45.0 liters, what must the new temperature be to maintain constant pressure?
- 17) Determine the pressure change when a constant volume of gas at 1.00 atm is heated from 20.0 °C to 30.0 °C.
- 18) A gas has a pressure of 699.0 mm Hg at 40.0 °C. What is the temperature at standard pressure?
- 19) A 30.0 L sample of nitrogen inside a rigid, metal container at 20.0 °C is placed inside an oven whose temperature is 50.0 °C. The pressure inside the container at 20.0 °C was at 3.00 atm. What is the pressure of the nitrogen after its temperature is increased?
- 20) A sample of gas at 3.00×10^3 mm Hg inside a steel tank is cooled from 500.0 °C to 0.00 °C. What is the final pressure of the gas in the steel tank?

21) 93.0 mL of O₂ gas is collected over water at 0.930 atm and 10.0 °C. What would be the volume of this dry gas at standard conditions?

22) 690.0 mL of oxygen are collected over water at 26.0 °C and a total pressure of 725.0 mm of mercury. What is the volume of dry oxygen at 52.0 °C and 800.0 mm pressure?

23) If a gas is heated from 298.0 K to 398.0 K and the pressure is increased from 2.230×10^3 mm Hg to 4.560×10^3 mm Hg what final volume would result if the volume is allowed to change from an initial volume of 60.0 liters?

24) 500.0 mL of a gas was collected at 20.0 °C and 720.0 mm Hg. What is its volume at STP?

25) A gas balloon has a volume of 106.0 liters when the temperature is 45.0 °C and the pressure is 740.0 mm of mercury. What will its volume be at 20.0 °C and 780.0 mm of mercury pressure?

26) What is SCUBA and why is it important to slowly acclimatize while resurfacing to the water?

27) Conceptual questions:

List all the different demonstrations that were done in your lab work and in class. Be able to explain them with the appropriate law.