

LIFE 1010 01 SI Session #2

1) Complete the table below.

Symbol	Atomic #	Atomic Mass	# of Protons	# of Neutrons	# of Electrons
			33		
Ca ²⁺					
		127.6			
¹⁴ C					

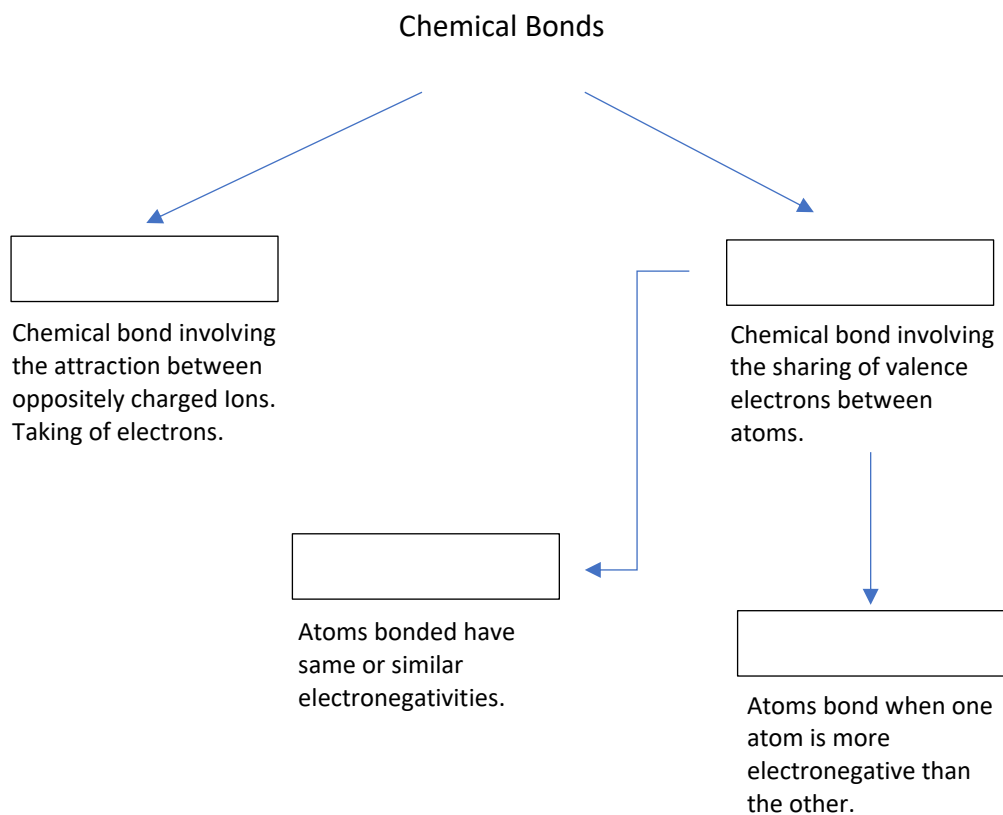
2) Draw the lewis dot structures for the following elements.

Carbon

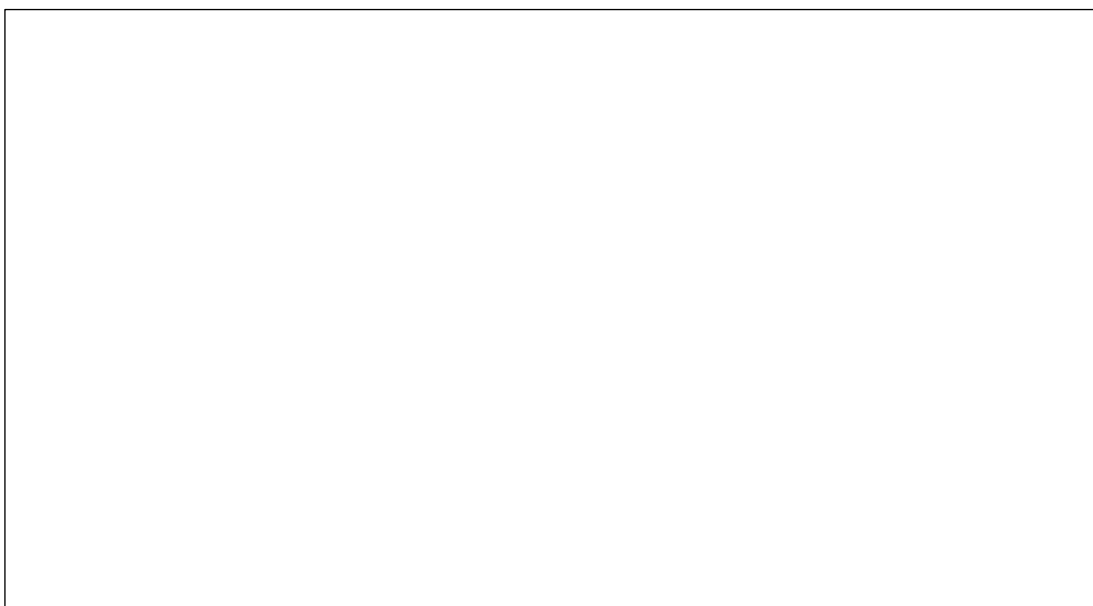
Hydrogen

Oxygen

3) Complete the flow chart below regarding Chemical Bonds.



- 4) Use the periodic table or any other reliable method to rank the following elements from most electronegative to least electronegative.
- Phosphorous
 - Oxygen
 - Hydrogen
 - Carbon
 - Nitrogen
- 5) Discuss with your group the difference between Cohesion and Adhesion.
- 6) Grease fires are a common occurrence in the kitchen. Many individuals who don't understand the properties of water attempt to put out grease fires by throwing water on top. However, throwing water on top of a grease fire will lead to a much worse outcome. Using what you know about the properties of water, discuss with your group why using water to put out a grease fire is dangerous.
- 7) Use the space below to draw a water molecule. Show the placement of electrons in the bonds as well as what partial charge each atom possesses.



8) The pH of human blood typically stays around 7.40. The pH of stomach acid ranges between 1.5 and 3.5; for this instance let's say stomach acid has a pH of 2.4. How does the H^+ concentration of stomach acid compare to that of blood (how many times more or less)?

9) Of the bonds below, determine if they are polar or non-polar covalent bonds.

Carbon-Nitrogen

Oxygen-Hydrogen

Carbon-Hydrogen

Nitrogen-Oxygen

Oxygen-Oxygen

10) Order the three types of chemical bond (Ionic, Covalent, Hydrogen) from strongest to weakest.

Medical Matters

During the process of cellular respiration, CO_2 is produced as a waste product. The waste CO_2 is transported by combining with water in the form of Carbonic Acid (H_2CO_3). The lungs are a major component in maintaining the pH of the body by controlling the level of CO_2 and therefore the levels of Carbonic Acid. How might the lungs react to a raised or lowered pH of the body?