# Open Chemistry Online – Post Quiz #12 (OpenStax Ch: 6.3 - 6.5)

1. Ionization energy **always** increases with subsequent ionizations (e.g. second ionization energy is always larger than first, etc.). **Is this True or False.** Explain in at least 2-3 sentences.
2. How can we use subsequent ionization energies (1st, 2nd, 3rd, 4th, etc.) to predict the most likely charge a cation will take? Does this reflect the periodic table? Explain in at least 2-3 sentences
3. State the abbreviated electron configuration and orbital diagram for the following ion: Fe3+
4. If Fe3+ should GAIN an electron, propose a specific set of **quantum numbers** (i.e: n, l, ml and ms)that would define this electron. Explain why these QNs were chosen in at least 1-2 sentences