1. **Order** the following elements by increasing electronegativity: C, Fe, Cl, Ca.
2. **Define** the following concepts:
3. Electronegativity
4. Metallic bonding
5. **Describe** Thompson´s model of the atom.
6. **State** the full electron configurations of: H (Z=1), P (Z=15) and Fe3+ (Z=26)
7. **Indicate** which of these sets of quantum numbers is allowed:

(2,1,0,1/2) (1,1,0,-1/2) (3,2,-2,1/2) (4,1,2,1/2)

1. **Describe** and **explain** the trend in ionization energies in the periodic table.ht, **5s – 4d – 5p**, named after the sublevels filled in taking into account **minimal**
2. **State** thepostulates of Bohr’s atomic model.
3. **Explain, giving reasons,** which is the type of bonding that will be developed more likely between the following couples of chemical elements:
4. Ti (electronegativity EN=1.5) and O (EN=3.5)
5. S (EN=2.5) and O (EN=3.5)
6. These are theelectronicenergy levels of an atom (“n=1” is the first energy level and so on…). **Draw** **and label** one emission electronic jump and one absorption jump. **State** whether the jumps you have drawn are of the same energy or different energy.



1. Helium (He) was first discovered as an element found in the Sun. After observing in an atomic spectrum of sunlight scientists saw set of lines on an emission spectrum that did not correspond to any of the known chemical elements. **Explain** how they came to this conclusion.
2. On the basis of the knowledge acquired about the relationship between bonding and substances properties, design a procedure to classify a set of unknown substances by their type of bonding. **Indicate** the tests/experiments you would do and what their possible results would mean.
3. The red line represents the Group 16 elements bonded with hydrogen. **Explain** why the boiling point increases from H2S to H2Te and **explain** why H2O does not fit this trend.

The blue line represents the halogen halide molecules. **Explain** why does HF not fit the pattern?

