Balance of forces and definitions of physical properties

NAME: _____

Fill in the blanks with the following words or phrases.

oppositely charged particles		protons	shorter	magnetic	charged
oppositely	bigger	same	gravitational	nucleus	charge	distance
electrical	electrons				

The three types of forces found in nature are _____, _____ and _____. The predominent (strongest) force within an atom is _____.This force exists between _____ particles. Electrical force between _____ charged particles is attractive, while that between particle of the _____ charge is repulsive. Atoms contain both forces; attractive force between _____ and _____, while re pulsive forces exist between _____ outside the nucleus and between _____ within the nucleus. (The repulsive force within the nucleus is overcome in most cases by binding energy, the exceptions being radioactive elements of atomic number > 83.) Atoms even with both attractive (between the electrons and the nucleus) and repulsive (between the electrons) forces within them are stable because the two are *balanced*. But the magnitude of attractive and repulsive force within an atom varies from one element to another.

Electrical force of *attraction* between two _____

_____ depends on their _____ and _____. The _____ the charge on the particles the stronger the force of attraction. The _____ the distance between them, the stronger the force of attraction.

Therefore the strength of force of attraction within atoms or ions of different elements are different because they may be different in the positive charge in the nucleus and/or number of electrons and/or the position of electrons relative to the nucleus.

One of the consequences of this is that they have different physical properties. However, the variation in any property is *periodic*.

Define the following terms and where appropriate include an equation to represent the process.

Periodic: _____

_____

Ionization: _____

Ionization energy: _____

Electron affinity: _____

Atomic radius: _____

Ionic radius: _____

Melting point: _____

Electronegativity: _____