Pg. 159 – 160 #17, 21, 33, 42

17) a) Period 3, Group 14 – Si – Metalloid
b) Period 5, Group 4 – Zr – Metal
c) Period 4, Group 9 – Co – metal
d) Period 3, Group 18 – Ar – nonmetal
e) Period 5, Group 17 – I – nonmetal
f) Period 6, Group 11 – Au – Metal (This is an exception with electron configurations – you will not have to do ones like this on your test.)

21) Iodine belongs to the halogen family. The other members of the family are fluorine, chlorine and bromine. All of the halogens have 7 valence electrons.

33) a) Selenium; b) Group 16, Period 4; c) nonmetal; d) brittle solid, dull, nonconducting; e) (cannot draw – Selenium with six dots); f) oxygen, sulfur; g) It would gain 2 electrons to achieve an outer configuration similar to krypton.

42) Potassium has a greater number of electrons between the nucleus and the valence shell creating a greater shielding effect. Therefore potassium will lose its valence electron more readily than lithium due to its lower first ionization energy.

Pg. 266-267 # 37, 38, 42, 46

37)a) As^{3-} is larger because it has gained electrons while As^{3+} has lost electrons ;
b) Tl^{+} is larger because this ion lost electrons from its outer p orbital while Tl^{3+} lost the entire outer energy level of electrons.

38) The peaks represent the ionization energies of elements, such as Mg and P, that have electron configurations more stable than those of the rest of the elements in the period (full or half-full sublevels).

42) Multiple oxidation numbers are possible in the transition elements because they can lose not only the 2 valence electrons but also electrons from a lower energy level (d-sublevel)

46) Silver had d electrons added after the s electrons are filled.