**Pg 71 #1-16 Solutions**

1. Boron (B)

2. (a) C 6p, 6n – 2e, 4e

(b) F 9p, 10n – 2e, 7e

(c) Mg 12p, 12n – 2e, 8e, 2e

(d) S 16p, 16n – 2e, 8e, 6e

3. (a) An electron shell is a region surrounding the nucleus of an atom that can contain electrons.

(b) 2, 8, 8, 18

4. 2, 8, 8

5. (a) Lose

(b) Positive

6. Neon

7. Argon

8. The valence shell is the outermost occupied shell in an atom, while a valence electron is an electron that occupies this shell.

9. All alkaline earth metals have 2 valence electrons.

10. The third electron shells fills up one electron at a time from 1e in sodium to 8e in argon.

11. Noble gases have filled valence energy levels. So stable!

12. (a) Metal atoms lose their valence electrons, revealing a filled electron shell below it.

(b) Non-metal atoms gain electrons until their valence electron shell is filled.

13. (a) Ne 10p, 10n - 2e, 8e

(b) S 16p, 16n - 2e, 8e, 6e

(c) K 19p, 20n - 2e, 8e, 8e, 1e

(d) Be 4p, 5n – 2e, 2e

14. (a) Neon

(b) Nitrogen

(c) Magnesium

15. (a) Ar 18p, 22n – 2e, 8e, 8e

(b) P 15p, 16n – 2e, 8e, 5e P3– 15p, 16n – 2e, 8e, 8e

(c) S 16p, 16n - 2e, 8e, 6e S2– 16p, 16n - 2e, 8e, 8e

(d) Cl 17p, 19n – 2e, 8e, 7e Cl– 17p, 19n - 2e, 8e, 8e

(e) K 19p 2e, 8e, 8e, 1e K+ 19p, 20n - 2e, 8e, 8e

(f) Ca 20p,20n – 2e, 8e, 8e, 2e Ca2+ 20p, 20n - 2e, 8e, 8e

16. The arrangements of the electrons in all ions in question 15 are identical (2e, 8e, 8e). All look like Argon!!