**Pg 71 #1-16 Solutions**

1. Boron (B)

2. (a) C 6p 2, 4

(b) F 9p 2, 7

(c) Mg 12p 2, 8, 2

(d) S 16p 2, 8, 6

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 1 at sodium to 8 at argon.

11. Noble gases have filled valence energy levels.

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 2, 8

(b) S 16p 2, 8, 6

(c) K 19p 2, 8, 8, 1

(d) Be 4p 2, 2

14. (a) Neon

(b) Nitrogen

(c) Magnesium

15. (a) Ar 18p 2, 8, 8

(b) P 15p 2, 8, 5 P3– 15p 2, 8, 8

(c) S 16p 2, 8, 6 S2– 16p 2, 8, 8

(d) Cl 17p 2, 8, 7 Cl– 17p 2, 8, 8

(e) K 19p 2, 8, 8, 1 K+ 19p 2, 8, 8

(f) Ca 20p 2, 8, 8, 2 Ca2+ 20p 2, 8, 8

16. The arrangements of the electrons in all ions in question 15 are identical (2, 8, 8).