Chemistry 40S

Atomic Structure-Chapters 5 & 6 Handout

Answers to Selected Questions

Chapter 5-

Practice problems (see attached).

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 88. 1s22S22p63s23p64s23d8 or [Ar] 4s23d8

 89. He, Ca, Co, Ba

 91. It has only two valence electrons (they are 4s electrons)

 94. Fr

Chapter 6

Practice problems (see attached).

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 42. Group number = number of valence electrons

 43. The energy level of an atom’s outer electrons = the period (on the periodic table)

 44. 8 valence electrons except He (2)

 45. s,p,d,f

 46. ending in p6 as this is a noble gas

 47.

 Group Period Block

1. 3b 5 d
2. 5A 4 p
3. 8A 2 p
4. 3A 3 p

49. Valence electrons = group A number

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 52. Larger radius because there are more principal energy levels as you go down a group.

 54. An inner shell electron is closer to the positive nucleus and attraction is greater.

 57. Energy needed to remove an electron from an atom

 59. Noble gases. They have the greatest nuclear charge in each row (period).

62. These atoms all have their outer electrons in the same shell. As you go across a row, there is more nuclear charge (protons) pulling outer electrons closer.

 63. a. N b. Ne c. Li

 66. a. 8 b. 3 c. 1