

Chapter 16

The Atom

Practice Problems

1. Give the number of protons, neutrons, and electrons in a neutral ${}^{96}_{48}\text{Cd}$ atom.

48 protons, 48 neutrons, 48 electrons

2. Give the number of protons, neutrons, and electrons in a neutral ${}^{84}_{38}\text{Sr}$ atom.

38 protons, 46 neutrons, 38 electrons

3. Write the isotopic notation for an atom with 82 protons, 125 neutrons, and 82 electrons.

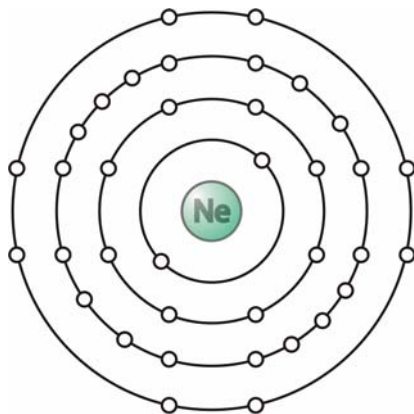


4. Write the isotopic notation for an atom with 8 protons, 8 neutrons, and 8 electrons.

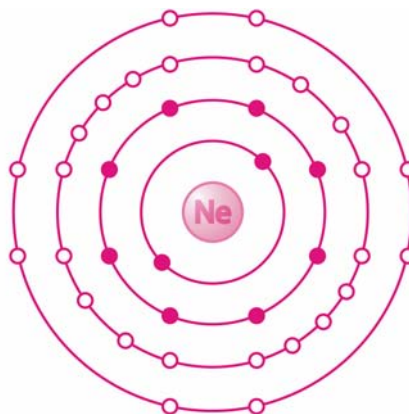


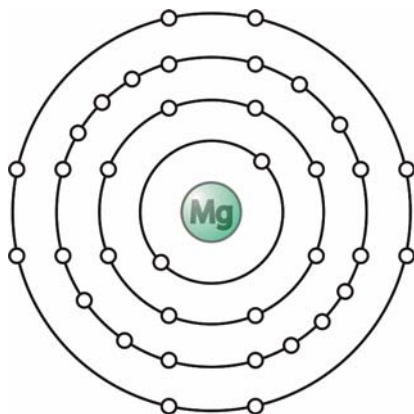
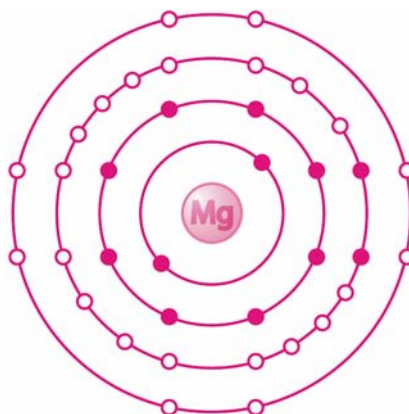
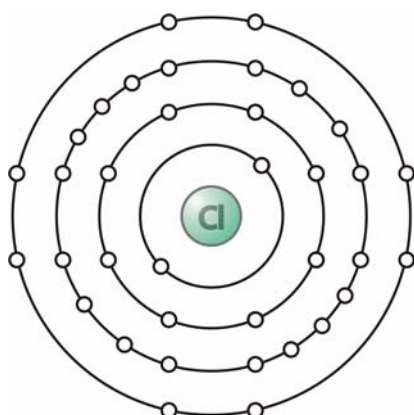
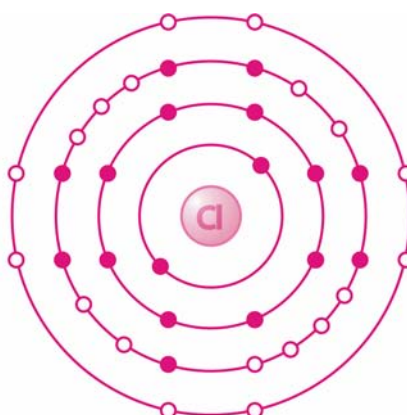
For questions 5–7, a blank Bohr model of an atom is provided. For the element specified in the question, fill in the dots in each energy level according to the electron arrangement rules given in your textbook. Also, write the number of valence electrons for each in the blank provided.

5. Neon ($Z = 10$)



Valence electrons: 8



6. Magnesium ($Z = 12$)Valence electrons: 2 7. Chlorine ($Z = 17$)Valence electrons: 7 

Classify the following nuclear changes as alpha decay, beta decay, or gamma decay.

