

Bohr Model Questions

- _____ 1. Which atom in the ground state has an outermost electron with the most energy?
A) Cs B) K C) Li D) Na
- _____ 2. Which statement describes the relative energy of the electrons in the shells of a calcium atom?
A) An electron in the first shell has more energy than an electron in the second shell.
B) An electron in the first shell has the same amount of energy as an electron in the second shell.
C) An electron in the third shell has more energy than an electron in the second shell.
D) An electron in the third shell has less energy than an electron in the second shell.
- _____ 3. Which atom in the ground state has a partially filled second electron shell?
A) hydrogen atom B) lithium atom
C) potassium atom D) sodium atom
- _____ 4. How do the energy and the most probable location of an electron in the third shell of an atom compare to the energy and the most probable location of an electron in the first shell of the same atom?
A) In the third shell, an electron has more energy and is closer to the nucleus.
B) In the third shell, an electron has more energy and is farther from the nucleus.
C) In the third shell, an electron has less energy and is closer to the nucleus.
D) In the third shell, an electron has less energy and is farther from the nucleus.
- _____ 5. What is the electron configuration of a sulfur atom in the ground state?
A) 2-4 B) 2-6
C) 2-8-4 D) 2-8-6
- _____ 6. Which atom in the ground state has five electrons in its outer level and ten electrons in its kernel?
A) C B) Cl C) Si D) P
- _____ 7. What is the maximum number of electrons that can occupy the fourth principal energy level (shell) of an atom?
A) 6 B) 8 C) 18 D) 32
- _____ 8. The maximum number of electrons that can occupy a principal energy level (n) of an atom is equal to
A) n B) $2n$ C) n^2 D) $2n^2$
- _____ 9. An atom of which element in the ground state contains electrons in the fourth principal energy level?
A) Kr B) Ar C) Ne D) He
- _____ 10. An atom contains a total of 25 electrons. When the atom is in the ground state, how many different principal energy levels will contain electrons?
A) 1 B) 2 C) 3 D) 4
- _____ 11. The principal quantum number of the outermost electron of an atom in the ground state is $n = 3$. What is the total number of occupied principal energy levels contained in this atom?
A) 1 B) 2 C) 3 D) 4
- _____ 12. Which element has atoms with only one completely filled principal energy level?
A) N B) P C) As D) Sb
- _____ 13. Which principal energy level of an atom contains an electron with the lowest energy?
A) $n = 1$ B) $n = 2$
C) $n = 3$ D) $n = 4$
- _____ 14. In an aluminum atom in the ground state, which energy level contains the most electrons?
A) 1 B) 2 C) 3 D) 4
- _____ 15. Which principal energy level do the valence electrons of a carbon atom in the ground state occupy?
A) 1 B) 2 C) 3 D) 4
- _____ 16. Which element has a total of 5 valence electrons present in the fifth energy level (shell)?
A) Sb B) Bi C) I D) Br