Electron Configuration and Orbital Rules

Chemistry · Answer Key · 16 Questions

1. What is the atomic number of Oxygen, which determines the number of electrons it has?

A) 6
B) 7
C) 8
D) 10

2. According to the Aufbau Principle, how do electrons fill orbitals?

A) Highest energy first
B) Lowest energy first
C) Randomly
D) All at once

3. What is the electron configuration of Oxygen?

A) 1s2 2s2 2p4
B) 1s2 2s2 2p6
C) 1s2 2s2 2p2
D) 1s1 2s2 2p5

4. What does Hund's Rule state regarding electron filling?

A) Electrons pair immediately
B) Electrons fill orbitals singly with parallel spins first
C) Electrons only fill p-orbitals
D) Electrons must have opposite spins in separate orbitals

5. How many electrons can a single orbital hold according to the Pauli Exclusion Principle?

A) 1
B) 2
C) 4
D) 6

6. What must be true about the spins of two electrons sharing the same orbital?

A) They must be parallel
B) They must be the same
C) They must be opposite
D) They must be zero

7. Which of the following is the correct filling order for the first few subshells?

A) 1s -> 2p -> 2s
B) 1s -> 2s -> 2p
C) 2s -> 1s -> 2p
D) 2p -> 2s -> 1s

8. What is the atomic number of Carbon?

A) 5
B) 6
C) 7
D) 8

9. What is the total number of electrons in Helium?

A) 1
B) 2
C) 3
D) 4

10. What is the maximum number of electrons an 's' subshell can hold?

A) 1
B) 2
C) 6
D) 10

11. How many orbitals are in a 'p' subshell?

A) 1
B) 3
C) 5
D) 7

12. What is the maximum number of electrons a 'p' subshell can hold?

A) 2
B) 4
C) 6
D) 8

13. How many orbitals are in a 'd' subshell?

A) 1
B) 3
C) 5
D) 7

14. How many electrons can an 'f' subshell hold?

A) 6
B) 10
C) 14
D) 18

15. What defines the region around the nucleus where electrons are likely to be found?

A) Orbitals
B) Energy shells
C) The nucleus
D) Protons

16. What is the electron configuration of Nitrogen (atomic number 7)?

A) 1s2 2s2 2p3
B) 1s2 2s2 2p2
C) 1s2 2s2 2p4
D) 1s2 2s1 2p4