

Electron Configuration and Orbital Rules

Chemistry · Practice Test · 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) $1s^2 2s^2 2p^4$
- B) $1s^2 2s^2 2p^6$
- C) $1s^2 2s^2 2p^2$
- D) $1s^1 2s^2 2p^5$

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) $1s^2 2s^2 2p^3$
- B) $1s^2 2s^2 2p^2$
- C) $1s^2 2s^2 2p^4$
- D) $1s^2 2s^1 2p^4$