

1. Which electron configuration represents an atom in an excited state?

- A) $1s^2 2s^2 2p^6 3p^1$ C) $1s^2 2s^2 2p^6 3s^2 3p^2$
B) $1s^2 2s^2 2p^6 3s^2 3p^1$ D) $1s^2 2s^2 2p^6 3s^2$

2. All of the elements in Period 3 have a total of 2 electrons in the

- A) 2s sublevel C) 2p sublevel
B) 3s sublevel D) 3p sublevel

3. Which atom in the ground state has three unpaired electrons in its outermost principal energy level?

- A) Li C) N
B) B D) Ne

4. What is the total number of valence electrons in an atom with the electron configuration $1s^2 2s^2 2p^6 3s^2 3p^3$?

- A) 6 C) 3
B) 2 D) 5

5. Which orbital notation represents an atom of beryllium in the ground state?

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

6. Which element has a completely filled third principal energy level?

- A) Ar C) Fe
B) N D) Zn

7. Which atom in the ground state has only 3 electrons in the 3p sublevel?

- A) phosphorus C) argon
B) potassium D) aluminum

8. What is the total number of occupied principal energy levels in a neutral atom of neon in the ground state?

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

9. Which sublevel configuration correctly represents a completely filled third principal energy level?

- A) $3s^2 3p^6 3d^8$ C) $3s^2 3p^6 3d^{10}$
B) $3s^2 3p^2 3d^{10}$ D) $3s^2 3p^6 3d^5$

10. Which atom in the ground state contains a partially filled 3p orbital?

- A) argon C) potassium
B) calcium D) aluminum

11. In the ground state, the atoms of elements in Period 2 all have the same number of

- A) protons C) 1s electrons
B) neutrons D) oxidation states

12. Which is the electron configuration for a neutral atom in the ground state?

- A) $1s^2 2s^2 3s^1$ C) $1s^2 2s^2 2p^6 3p^1$
B) $1s^2 2s^2 2p^4 3s^1$ D) $1s^2 2s^2 2p^6 3s^1$

13. Which represents the electron configuration of an isotope of oxygen in the ground state?

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

14. The total number of sublevels in the fourth principal energy level of an atom is

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

15. Which is a possible electron configuration for argon in the excited state?

- A) $1s^2 2s^2 2p^7 3s^2 3p^5$ C) $1s^2 2s^2 2p^6 3s^1 3p^7$
B) $1s^2 2s^3 2p^5 3s^2 3p^6$ D) $1s^2 2s^2 2p^6 3s^2 3p^5 4s^1$

16. Which is a correct description of the shape and spatial orientation of the p orbitals in an atom?

- A) All have the same shape but a different orientation.
B) All have the same shape and the same orientation.
C) All have a different shape and a different orientation.
D) All have a different shape but the same orientation.

17. A maximum of 6 electrons can occupy

- A) an s orbital C) a p orbital
B) an s sublevel D) a p sublevel

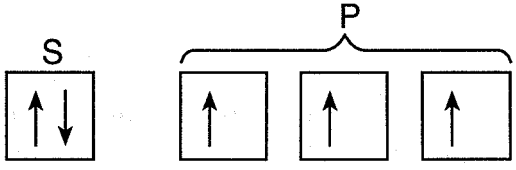
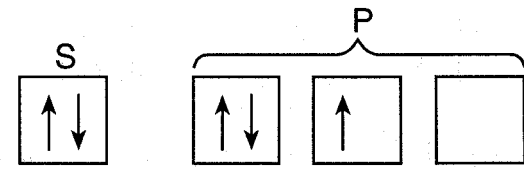
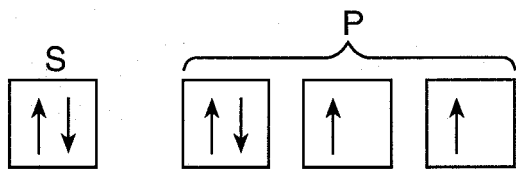
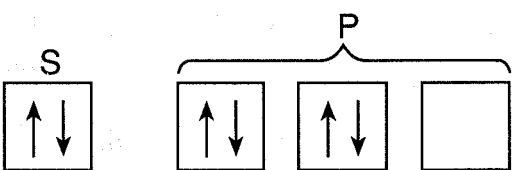
18. How does the ground state electron configuration of the hydrogen atom differ from that of a ground state helium atom?

- A) Hydrogen has one electron in a higher energy level.
B) Hydrogen has two electrons in a lower energy level.
C) Hydrogen contains a half-filled orbital.
D) Hydrogen contains a completely filled orbital.

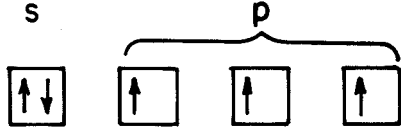

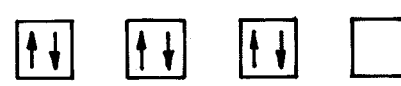

19. Which electron transition represents the release of energy?

- A) $1s$ to $3p$ C) $3p$ to $1s$
 B) $2s$ to $2p$ D) $2p$ to $3s$

20. Which orbital notation correctly represents the outermost principal energy level of a nitrogen atom in the ground state?

- A) 
- B) 
- C) 
- D) 

21. Which orbital notation correctly represents the outermost principal energy level of a sulfur atom in the ground state?

- A) 
- B) 
- C) 
- D) 

22. In an atom of lithium in the ground state, what is the total number of orbitals that contain only 1 electron?

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

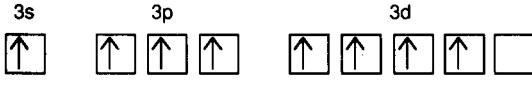
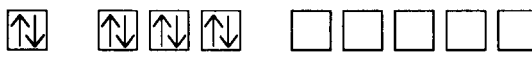
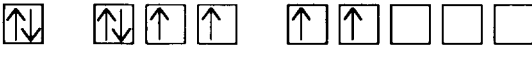

23. What is the total number of orbitals in a p sublevel

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

24. Which represents the electron configuration of the outermost principal energy level of a Group 15 element in the ground state?

- A) s^2p^3 C) s^1p^3
 B) s^2p^5 D) s^1p^5

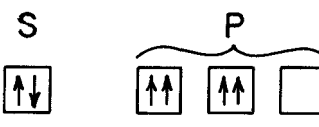



25. Which is the orbital notation for the electrons in the third principal energy level of an argon atom in the ground state?

- A) 
- B) 
- C) 
- D) 

26. Which electron configurations represent the first two elements in Group 17 (VIIA) of the Periodic Table?

- A) $1s^22s^1$ and $1s^22s^2$
 B) $1s^22s^2$ and $1s^22s^22p^1$
 C) $1s^22s^22p^5$ and $[\text{Ne}]3s^23p^5$
 D) $1s^22s^22p^6$ and $[\text{Ne}]3s^23p^5$

27. Which orbital notation correctly represents the outermost principal energy level of oxygen in the ground state?

- A) 
- B) 
- C) 
- D) 

28. Which sublevels are occupied in the outermost principal energy level of an argon atom in the ground state?

- A) $3s$ and $3d$ C) $2s$ and $3p$
 B) $3s$ and $3p$ D) $2p$ and $3d$