Name
Date **Period**

Grade:

Lab 13
ELECTRON ARRANGEMENT

PreLab Questions

None

NAME _____ PERIOD _____

DATE _____

EXPERIMENT 13
ELECTRON ARRANGEMENT

PROCEDURE

Complete the following table at home and check your results with your lab group before answering the questions during lab.

Element	Electron Configuration	Orbital Notation	Electron Dot Diagram
N			
H			
Be			
C			
F			
Ne			
Na			
Mg			
Al			
Si			
S			
Cl			
Ar			

Element	Electron Configuration	Orbital Notation	Electron Dot Diagram
K			
Ca			
Sc			
Cr			
As			
I			
Mg^{2+}			
Cl^{-}			
N^{3-}			
F^{-}			
Na^{+}			
Ca^{2+}			

QUESTIONS

Answer the questions directly on this page. If several choices are listed circle all the correct ones.

1. The configuration $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$ is for element
2. The electron configuration $1s^2 2s^2 2p^6 3s^2 3p^4$ has unpaired electrons.
3. Which is the configuration of an element in the excited state?

   $1s^2 2s^2$ $1s^2 2p^4$ $1s^2 2s^2 2p^5$ $1s^2 2s^2 2p^6$
4. A neutral nitrogen atom differs from the N^{3-} ion in that it has electrons.
5. What is the electron configuration of a H atom in the ground state
6. Write the electron configuration for a sodium ion.
7. How many orbitals are completely filled in an atom of nitrogen.

8. Which atom in the ground state has only one unpaired electron in the valence shell?

   Cl Si P S

9. What is the maximum number of electrons that can occupy the third principal energy level?

10. Given $1s^2 2s^2 2p^6 3s^2 3p^5$, which electrons and how many of them have the most energy?

11. F^- has an electron configuration that is similar to what element?

12. What atom has 2 electrons in the 3p sublevel?

13. How many orbitals are occupied in the 3n energy level for the aluminum atom in the ground state?

14. Which element has electrons in the 3p sublevel? C He B Ne Ar.

15. Ca^{2+} ion has the same electron configuration as Na Sc Ar F-

16. What is the maximum number of electrons that can occupy the 3d sublevel?

17. Which sublevels are occupied in the outermost energy level in argon.

18. Draw the electron dot diagram for the chlorine atom.

19. Which atom has only one unpaired electron in the 2p sublevel? C Si N F

20. An atom of which element contains electrons in the fourth energy level?

    Na Cl Ca F Mg

21. Why are the outermost electrons the only ones included in orbital notation and electron dot diagrams?

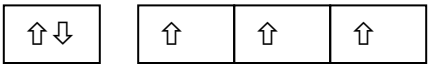
22. The orbital filling diagram has arrows pointing in opposite directions when two electrons occupy the same orbital. What do these arrows indicate?

23. How many electrons do the elements in Group 2 of the Periodic Table have in their electron dot diagram?

24. Element X has an electron diagram. X:

    Name at least two elements that could be X.

25. Identify the element that has the following orbital notation: 5s 5p



Discussion