

Name: _____ Date: _____ Section: _____

Electron Configuration and Orbitals

Directions: The following questions are meant to help you solidify your understanding of electron configuration. Try to answer the following questions quickly and accurately. Refer to your notes and periodic table as needed.

1. What is an orbital?
2. How many orbitals are possible in neon?
3. Which is "larger", the term "energy level" or "orbital"? Or said another way, which can fit inside the other?
4. How many electrons will the 1st energy level hold? How did you figure this out?
5. How many electrons will the 2nd energy level hold?
5. How many electrons will the 3rd energy level hold?
6. How many electrons will the 4th energy level hold?
7. How many electrons will the 5th energy level hold?
8. How many electrons will an orbital hold?
9. How many orbitals in the 1st energy level?
10. How many orbitals in the 2nd e.l.?
11. How many orbitals in the 3rd e.l.?
12. How many orbitals in the 4th e.l.?
13. How many orbitals in the 5th e.l.?
14. An element with only 2 electrons would have ----- energy levels?
15. An element with only 2 electrons would have which orbital? s or p or d or f
16. An element with 3 electrons would have ---- energy levels.
17. An element with 3 electrons would have (s p d f) orbital in the first energy level and ---- (pick one -1 2 3) electrons in the second energy level.
18. An element with 5 electrons would have the 1s subshell filled? Yes or no
19. An element with 5 electrons would have the 2s orbital filled? Yes or no
20. An element with 5 electrons would have the 2p orbitals filled? Yes or no
21. An element with 6 electrons would have the 2p orbitals filled?

1. A p orbital will hold a maximum of how many electrons?
2. Draw the three representations of the p orbitals superimposed on each other. Assume that your drawing is 2p and all the orbitals are filled, identify the element?
3. P orbitals will hold a total of _____ electrons
D orbitals will hold a total of _____ electrons
F orbitals will hold a total of _____ electrons
4. How many orbitals in 1s?
5. How many electrons will 1s orbital hold?
5. The 2nd energy will have what types of orbitals?
2s will hold how many electrons?
2p will hold how many electrons?
How many total electrons found in the 2nd energy level?
6. The 3rd energy level has three sublevels s, p, d.
What are they written as?
How many total electrons in the 3rd energy level?
7. When filling in the electronic configuration which level is filled in first?
8. What is the order of filling in the energy level and subsequent orbitals of Mg (atomic number 12)?
9. What is the electronic configuration of neon (atomic number 10)?
10. What is the shape of the s orbital?
11. Draw the shapes of the orbitals for Nitrogen (atomic number 7). Superimpose the orbital shapes on one focal point to represent the nucleus.