

## Test Review Chapter 5 Chemistry

1. Where are the electrons located in the Bohr model of an atom? **Outside the Nucleus**
  2. Where are protons located in the above model? **In the Nucleus**
  3. If an electron moves further away from the nucleus what happens to its energy? **The Energy increases.**
  4. What is the shape of an S orbital? What is the shape of a P orbital?  
**Sphere** **Dumbbell**
  5. How many energy sublevels are in the third principal energy level? (Hint Energy sublevels are s,p,d,f. not the number of orbitals.) **3 s,p,d**
- Notes: Principal energy Level = Principal quantum number = 1,2,3,4 etc.  
Energy Sub levels = Atomic Orbits = s,p,d,f  
Orbitals – There are 3 orbitals in the p energy sub level
6. What is the maximum number of d orbital in a principal energy level?  
**d has 5 orbitals (bedrooms)**  
Note: s has 1 orbital. p has 3 orbitals d has 5 orbitals f has 7 orbitals
  7. What is the maximum number of electrons in the third principal energy level?  
**18 electrons**  
Note: If it was the second energy level it would be 8
  8. What needs to happen to move an electron to a different energy level?  
**Electron needs to absorb energy or lose energy. A quantum of energy**
  9. What do the letters (s,p,d,f) represent? **Shapes**
  10. What types of atomic orbits are in the second principal energy level?  
**s and p**

11. What is the number of electrons in the outermost energy level of a Aluminum atom? ( Hint: The outermost energy level would be the highest number. 3 in this case

3 electrons

12. If 4 electrons are available to fill 3p orbitals, how will the electrons be distributed?

2 electrons in one orbital and 1 each in the other two

13. How many unpaired ( or half-filled) orbitals are in a Fluorine atom

One

14. State the highest and lowest frequency electromagnetic waves.

Highest: Gamma rays

Lowest: Radio waves

15. How are the frequency and wavelength related?

Inversely proportional

16. How are the energy and the wavelength related?

Inversely proportional

17. How are the energy and frequency related?

Directly proportional. The higher the frequency the more energy

18. What is a photon? Quantum of Light

19. What makes an atom give off an emission of light? When it drops an energy level

20. Know which has a higher energy difference. Example: 1st and 2nd energy level or 5<sup>th</sup> and 6<sup>th</sup> energy level. The energy difference between 1 and 2 is higher than between 5 and 6

- If you have 2 electrons in an orbital they spin in opposite directions.
- The speed of all radiation is the same. It's the speed of light. For example a radio wave moves at the same speed as a gamma ray.
- Aufbau principal says electrons enter orbitals of lowest energy first
- Quantum mechanical model involves the probability of finding an electron in a certain position.