

- 1) State the rules for the number of *sublevels* and the number of *orbitals* allowed in any energy level  $n$ .
  
- 2) What are the first *six* different sublevels and how many orbitals can be in each?
  
- 3) Draw representations of an s orbital, a p orbital, and a d orbital (you can draw either version).
  
- 4) How many s orbitals are there in each principal (main) energy level?  
a) 1      b) 2      c) 3      d) 4      e) depends on the atom
  
- 5) How many orbitals are there in the  $n=6$  principal energy level?  
a) 2      b) 6      c) 12      d) 36      e) 72
  
- 6) What is the maximum number of electrons that the  $n=6$  principal energy level can hold?  
a) 2      b) 6      c) 12      d) 36      e) 72
  
- 7) How many p orbitals are there in each principal energy level  $n \geq 2$ ?  
a) 1      b) 2      c) 3      d) 5      e) 7
  
- 8) How many orbitals are there in the  $n=2$  principal energy level?  
a) 2      b) 4      c) 9      d) 16      e) 25
  
- 9) What is the maximum number of electrons can the  $n=3$  principal energy level can hold?  
a) 2      b) 8      c) 18      d) 32      e) 72
  
- 10) If a principal energy level contains only s, p, d, f and g orbitals, which energy level is it?  
a)  $n=1$       b)  $n=2$       c)  $n=3$       d)  $n=4$       e)  $n=5$       f)  $n=6$
  
- 11) How do the energy levels of the different sublevels (s, p, d, etc.) behave in multi-electron atoms compared to a single-electron atom? Why? What order do they take?
  
- 12) Within a single main energy level  $n$ , what happens to the spacing between sublevels as  $n$  increases?
  
- 13) What happens among the sublevels in different main energy levels as  $n$  increases?