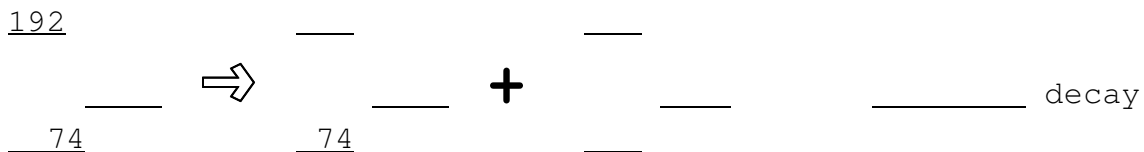
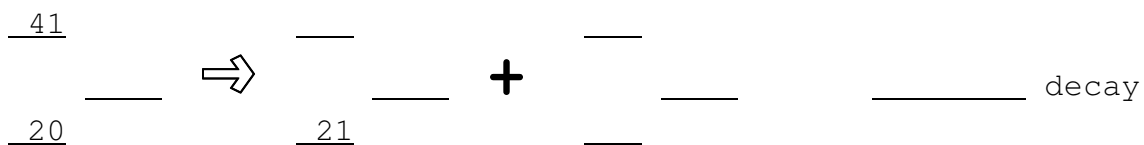
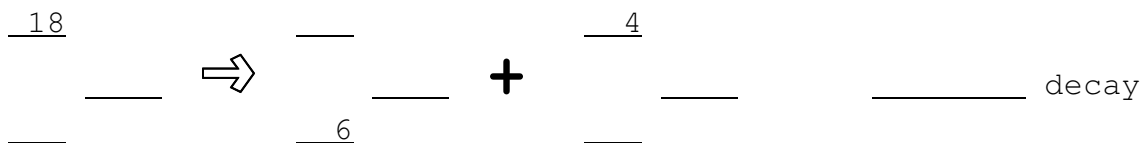


Test Review for SCH 4C Test - Subatomic Particles, Models of the Atom, Bohr Diagrams, Octet Rule

1. Be familiar with the properties of protons, neutrons and electrons - fill in this table for practice. Multiple choice questions will test your understanding of this table.

| name | symbol | charge | mass | location |
|----------|--------|--------|------|----------|
| proton | | | | |
| neutron | | | | |
| electron | | | | |

2. Be able to complete nuclear equations for alpha beta and gamma decay **AS WELL AS NUCLEAR FISSION** (example not shown here) - see text book question from pages 142 to 148. Also see worksheet and quiz on this topic.



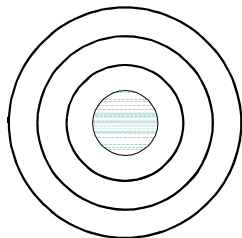
3. Using this table, place each name that represents a scientist or group of scientists in chronological order (this means in order of oldest to most recent). Then in the second column, indicate the main points or discovery that goes with each model. Point form is preferred. Include in your answer (in the correct location) the name of two fundamental laws and the main points in Dalton's Model.

Alchemists, Bohr, Dalton, Democritus, Empedocles, Rutherford, Thomson

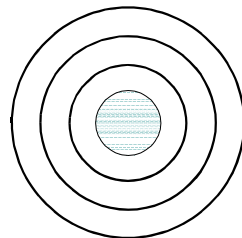
| Name | Main Points or Discovery |
|------|--------------------------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |

4. Add electrons to each of the following diagrams to represent Bohr-Rutherford diagrams for each of the following atoms or ions. Remember the 2, 8, 8, idea and if necessary the way of short-forming electrons that correspond to the elements from the Sc to Zn columns etc. Draw in extra shells if necessary

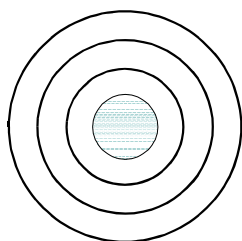
Li



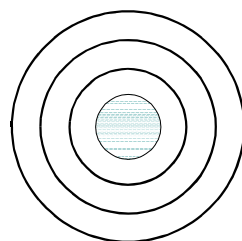
N



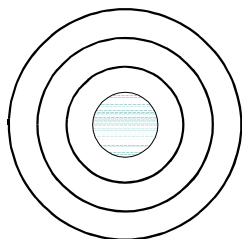
Si



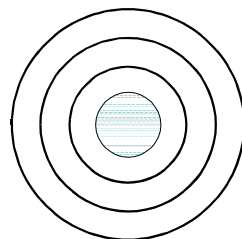
Cl



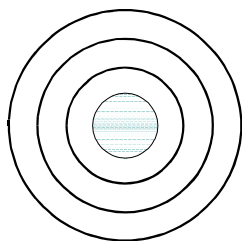
S



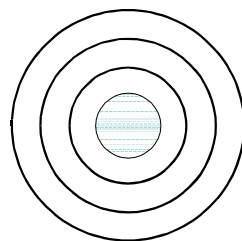
O²⁻



Na

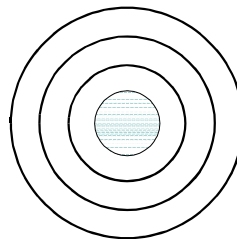
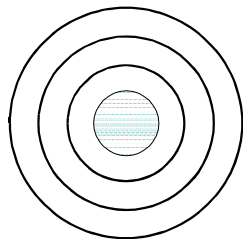


Mg²⁺



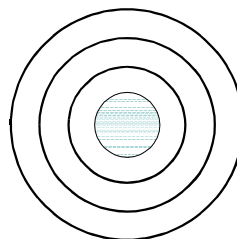
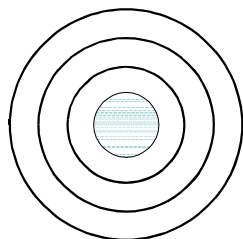
5. Show how the Bohr-Rutherford diagram changes as chlorine follows the octet rule to become like the nearest noble gas. Be sure to include the resulting charges on the final diagram.

Cl



6. Show how the Bohr-Rutherford diagram changes as magnesium follows the octet rule to become like the nearest noble gas. Be sure to include the resulting charges on the final diagrams

Mg



7. Fill in the following table to indicate how each of the following atoms behaves when it follows the octet rule to form positive or negative ions. The first three are done as examples.

| Atom | Number of Electrons in Valence Shell | Loses or Gains | Number of Electrons Lost or Gained | Resulting Ion |
|------------------|--------------------------------------|----------------|------------------------------------|-----------------|
| $_{15}\text{P}$ | 5 | gains | 3 | P^{3-} |
| $_{56}\text{Ba}$ | | | | |
| $_{5}\text{B}$ | | | | |
| $_{9}\text{F}$ | | | | |
| $_{54}\text{Xe}$ | | | | |
| $_{31}\text{Ga}$ | | | | |
| $_{14}\text{Si}$ | | | | |
| $_{52}\text{Te}$ | | | | |
| $_{11}\text{Na}$ | | | | |
| $_{85}\text{At}$ | | | | |
| $_{87}\text{Fr}$ | | | | |
| $_{35}\text{Br}$ | | | | |
| $_{55}\text{Cs}$ | | | | |
| $_{16}\text{S}$ | | | | |
| $_{7}\text{N}$ | | | | |
| $_{8}\text{O}$ | | | | |
| $_{6}\text{C}$ | | | | |
| $_{2}\text{He}$ | | | | |
| $_{82}\text{Pb}$ | | | | |
| $_{1}\text{H}$ | | | | |