

7.2 Bohr's Theory of the Atom

When an atom of a particular element absorbs _____

_____, they can re-emit the energy as _____ (that's how Neon lights work). Each element has a very specific pattern of wavelengths (colours) of light. This pattern

is called the _____.

This gave Bohr some insight into the structure of the atom.

He determined that atoms must have a certain _____ that they occupied. The electrons did not emit energy while in

any particular shell, just when the electrons _____

_____. These orbitals are similar to the way planets orbit the sun.

Here are Bohr's revisions:

-Electrons are located in _____ which are

located certain _____ from the nucleus

- _____ cannot exist between the defined shells

-Electrons can _____ energy to move up to a higher shell, or they can _____ energy to move down to a lower shell

-Electrons are _____ (have less energy) when they are closer to the nucleus.

The number of _____ an element has depends on which period it belongs to.

The number of _____ = it's period.

How many shells in Helium? Tungsten? Argon?

We can now make a complete “modern” version of the Atomic Theory of Matter

Remember that atoms are made of _____ , _____ ,
and _____. The number an atom has is based on the
number of protons it has. This is called the _____

Ex: all chlorine atoms or ions in the universe have ___ protons.

Protons cannot normally move about. It is the number of
_____ that are easily changed. Remember, protons are
_____ and electrons are _____.

An atom with a specific charge is called an _____. You can have a positive
or negative _____.

_____ = negative ion

_____ = positive ion

The charge of an ion is called _____.

Another way that atoms (ex: chlorine) of the same element can
be different is the number of _____. Remember,

_____ do not change the charge of an atom, but they do affect
their overall mass

The _____ of an atom is the total combined number of
protons and neutrons.

How many neutrons would a chlorine atom with a mass number of 35
have?