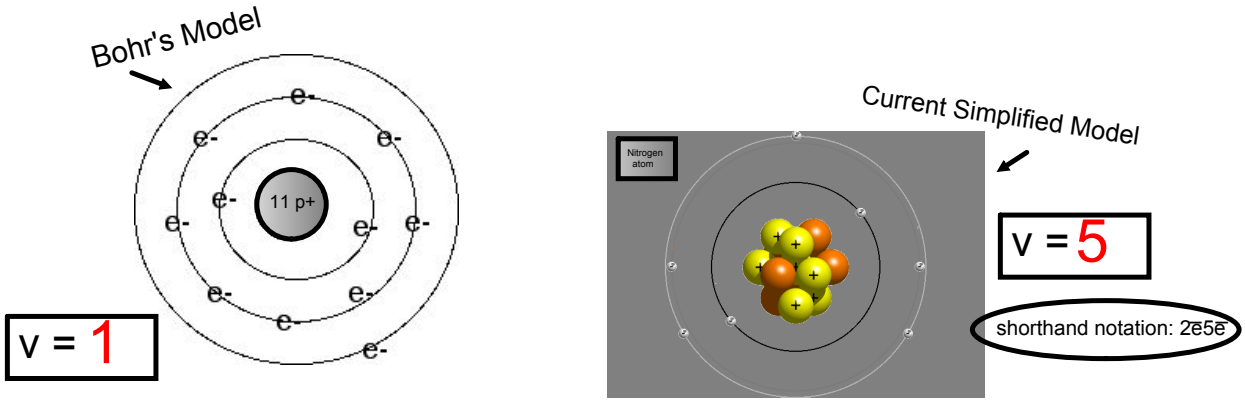
Physical Science 436 Quiz #2

Name:

Date:



1. For many years a variety of scientists made contributions towards developing our understanding of what an atom looks like.

a) What was Chadwick's contribution? That is, what did he add to Bohr's model in order that we would be left with the current simplified atomic model?

Chadwick added the idea that there are neutrons in the nucleus.

b) Identify three features of Bohr's model that remain in the simplified atomic model.

Choose any three of: the nucleus is very dense, the nucleus is very small, the atom is mostly empty space, most of the atom's mass is in the nucleus, electrons travel in energy levels, the atom is neutral, etc. You can give any features that apply to the Current Simplified Model except for the presence of neutrons in the nucleus.

c) The atom depicted in the "Bohr's Model" above is an atom of which element? Na

In Bohr's Model above it shows 11 protons, which means the element must be sodium since the atomic number of sodium (Na) is 11.

d) How many valence electrons are there in each of the two atoms shown above? Fill in the rectangles above with your answers.

e) Write the shorthand notation for the electron configuration of the atom shown in the "Bohr's Model". 2e8e1e

2. Refer to the periodic table and fill in the following charts:

Information on Sulphur

Symbol: S

Atomic number: 16

Atomic mass: 32.06

Number of protons: 16

Number of electrons: 16

Number of neutrons: 16

Group number: 6

Period number: 3

Number of energy levels: 3

Number of electrons in the outermost energy levels: 6

Information on Potassium

Symbol: K

Atomic number: 19

Atomic mass: 39.10

Number of protons: 19

Number of electrons: 19

Number of neutrons: 20

Group number: 1

Period number: 4

Number of energy levels: 4

Number of electrons in the outermost energy levels: 1

3. Write T (true) or F (false) for each of the following:

a) The mass of a neutron is 1840 mes the mass of an electron. ___T___

b) The mass of a proton is 1840 mes the mass of an electron. ___T___

c) The rao of the mass of a proton compared to the mass of a neutron is 1. ___T___

d) The mass number of an element represents the number of protons in the atom's nucleus. ___F___

e) The atomic number of an element represents the number of neutrons in the atom's nucleus. ___F___

f) The nucleus of an atom has an extremely low density. ___F___

g) The nucleus of an atom has an extremely low volume relave to the volume of the atom. ___T___

h) The nucleus contains a very small amount of the mass of an atom. ___F___

i) All bromine atoms contain 35 protons. ___T___

j) All fluorine atoms contain 9 neutrons. ___F___

4. Fill in the blanks with the appropriate family name:

a) The elements in this family all have a full outer orbit of electrons. Noble gases

b) The elements in this family are the most reactive metals. Alkali metals

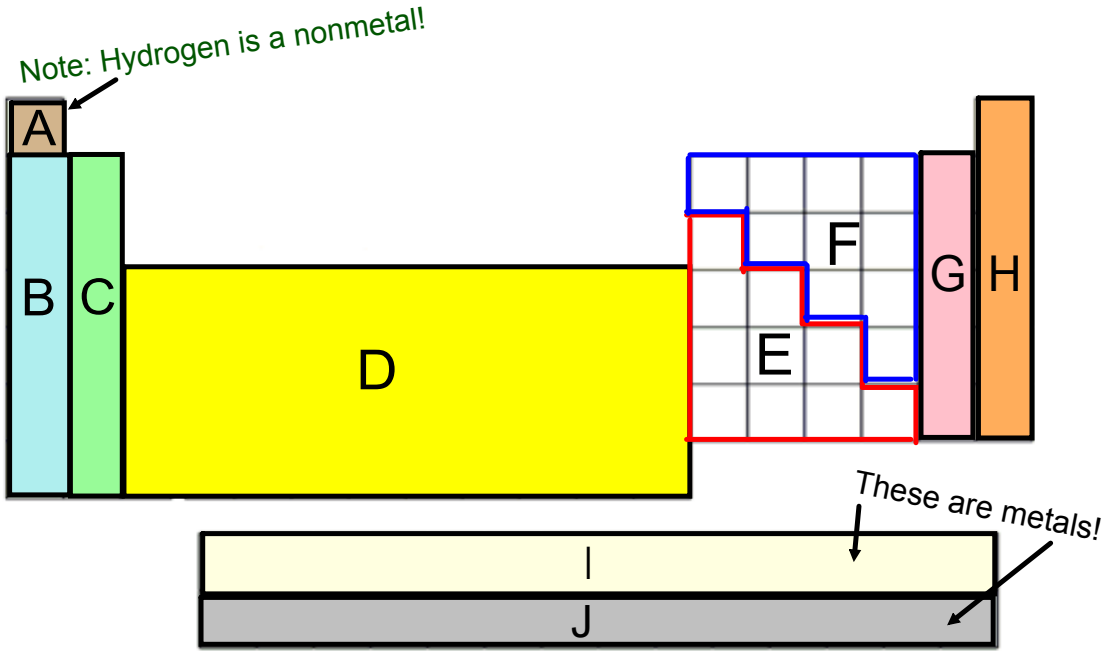
c) The elements in this family are the most reactive nonmetals. Halogens

d) The elements in this family all have two valence electrons. Alkaline Earth Metals

e) The elements in this family all have five valence electrons. Nitrogen Family

Note: All families in Groups IIIA - VIA are named according to the element at the top of each group.

5.



In which section(s) would you find:

a) the metals? B, C, D, E, I, J

b) the nonmetals? A, F, G, H

c) the halogens? G

d) the actinides? J

e) the alkaline earth metals? C

f) the alkali metals? B

g) the noble gases? H