**Chem 11 Review Handout – Answer to selected questions**

1. A) He B) He C) Ho D) He E) Ho
2. a) C b) P c) C d) P e) C f) P g) P

|  |  |  |
| --- | --- | --- |
| Subatomic Particle Name | Charge ( be specific!) | Location within atom |
| *Proton* | *+1* | *Nucleus* |
| *Electron* | *-1* | *Orbiting nucleus* |
| *Neutron* | *0* | *Nucleus* |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Element***  ***Name*** | ***Symbol*** | ***Atomic Number*** | ***# of***  ***Protons*** | ***# of***  ***Electrons*** | ***# of***  ***Neutrons*** | ***Mass***  ***Number*** | ***Charge*** | ***Cation / Anion***  ***/Neither*** |
| Nitrogen | *N* | *7* | 7 | *7* | *7* | 14 | 0 | *Neither* |
| *Sulfur* | *S* | 16 | *16* | *18* | 16 | *32* | 2- | *Anion* |
| *Sodium* | Na | *11* | *11* | 10 | *12* | 23 | *1+* | *Cation* |
| *Selenium* | *Se* | 34 | *34* | 36 | 45 | *79* | *2-* | *Anion* |
| Chromium | *Cr* | *24* | *24* | *24* | *28* | 52 | 0 | Neither |

1. a) b)  *+1 c)* -1  d)
2. Describe:

(a) Dalton’s Atomic Theory

(b) Thomson’s model of the atom

All matter is composed of small indivisible particles Atom small particle made up of positive matter with negative

Atoms of an element are identical in size shape and mass electrons imbedded

Atoms of one element are different than atoms of another element

Chemical reactions are the rearrangement of atoms (number of atoms Picture: Cookie model: electrons floating in positive background

before and after the same

Picture: solid ball, no parts

(c) Rutherford’s model of the atom

(d) Bohr’s model of the atom

Gold Foil Guy! Positively charged nucleus, surrounded by orbiting electrons

Atom with dense, positively charged nucleus orbiting in energy levels. Orbits determined by energy level.

surrounded by electrons. The nucleus contained the

protons and neutrons.

e) The Quantum Mechanical model of the atom

Electrons orbiting in clouds with definite shape. Orbit around positively charged nucleus. Probability function to estimate where electrons are. (s, p , d, f) shapes!!

1. Answer (C) : *(0.3000)(24.02)+(0.7000)(26.10) = 25.48 u*
2. *a) H+ b) Mg2+ c) S2- d) I- e) Al3+*

(a) K 1s22s22p63s23p6 4s1

(b) K+ 1s22s22p63s23p6

(c) S 1s22s22p63s23p4

(d) S2- 1s22s22p63s23p6

(e) Ca 1s22s22p63s23p64s2

(f) Ar 1s22s22p63s23p6

(g) Ru 1s22s22p63s23p64s23d104p65s24d6

(h) W 1s22s22p63s23p64s23d104p65s24d105p66s24f145d4