Chemistry 141 Name Key

Cary Willard

Quiz 2a (20 points) February 10, 2009

All work must be show to receive credit. Answers should be in scientific notation and to the correct number of significant figures.

1. (6 points) Tell the number of protons, electrons, and neutrons in each of the following species.
   1. 51Ti+3

Protons 22 Neutrons 29 Electrons 19

* 1. A neutral atom of boron-8

Protons 5 Neutrons 3 Electrons 5

1. (5 points) In nature, gallium consists of two isotopes, gallium-69 (mass = 68.926 amu and 60.1% natural abundance) and gallium-71(mass = 70.925 amu and 39.9% natural abundance). Calculate the weighted average atomic mass of gallium.
2. (3 points) Determine the oxidation state of each element in Sc2(SO3)3.

Sc +3 S +4 O -2

1. (6 points) Thiophene is a carbon-hydrogen sulfur compound used in the manufacture of pharmaceuticals. When burned completely in excess oxygen, its combustion products are CO2, H2O, and SO2. Combustion of a 0.535 g sample yields 1.119 g CO2, 0.229 g H2O, and 0.407 g SO2. What is the empirical formula of thiophene?

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1. (6 points) Tell the number of protons, electrons, and neutrons in each of the following species.
   1. 55Cr+2

Protons 24 Neutrons 31 Electrons 22

* 1. A neutral atom of silicon-30

Protons 14 Neutrons 16 Electrons 14

1. (5 points) In nature, europium consists of two isotopes, europium-151 (mass = 150.92 amu and 47.8% natural abundance) and europium-153(mass = 152.92 amu and 52.2% natural abundance). Calculate the weighted average atomic mass of europium.
2. (3 points) Determine the oxidation state of each element in Sr3(PO3)2.

Sr +2 P +3 O -2

1. (6 points) Thiophene is a carbon-hydrogen sulfur compound used in the manufacture of pharmaceuticals. When burned completely in excess oxygen, its combustion products are CO2, H2O, and SO2. Combustion of a 0.535 g sample yields 1.119 g CO2, 0.229 g H2O, and 0.407 g SO2. What is the empirical formula of thiophene?