Name _____ Period _____

College Prep Chemistry

Assignment 1O – Beta (β) Decay Processes   20 Points
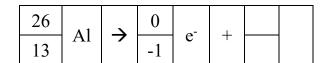
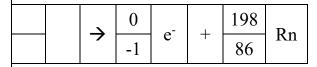*Answer the following questions based on the in class notes*

What is beta (β-) decay, and why does it occur in an atom?	What is positron (β+) emission, and why does it occur in an atom?

Complete the following nuclear decay equations showing the decay of common beta and positron emitting isotopes.

$$^{223}_{87}\text{Fr} \rightarrow\ ^{0}_{-1}\text{e}^- + \boxed{}$$

$$\boxed{} \rightarrow\ ^{0}_{-1}\text{e}^- + ^{59}_{29}\text{Cu}$$

$$^{165}_{61}\text{Pm} \rightarrow\ ^{0}_{-1}\text{e}^- + \boxed{}$$

$$\boxed{} \rightarrow\ ^{0}_{-1}\text{e}^- + ^{198}_{86}\text{Rn}$$

$$^{26}_{13}\text{Al} \rightarrow\ ^{0}_{-1}\text{e}^- + \boxed{}$$

$$\boxed{} \rightarrow\ ^{0}_{-1}\text{e}^- + ^{210}_{93}\text{Bi}$$

$$^{171}_{68}\text{Er} \rightarrow\ ^{0}_{-1}\text{e}^- + \boxed{}$$

$$\boxed{} \rightarrow\ ^{0}_{-1}\text{e}^+ + ^{122}_{51}\text{Sb}$$

$$^{15}_{8}\text{O} \rightarrow\ ^{0}_{+1}\text{e}^+ + \boxed{}$$

$$\boxed{} \rightarrow\ ^{0}_{+1}\text{e}^+ + ^{40}_{18}\text{Ar}$$

$$^{21}_{11}\text{Na} \rightarrow\ ^{0}_{+1}\text{e}^+ + \boxed{}$$

$$\boxed{} \rightarrow\ ^{0}_{+1}\text{e}^+ + ^{18}_{8}\text{O}$$

$$^{85}_{38}\text{Sr} \rightarrow\ ^{0}_{+1}\text{e}^+ + \boxed{}$$

$$\boxed{} \rightarrow\ ^{0}_{+1}\text{e}^+ + ^{151}_{63}\text{Eu}$$