SID ⬚⬚⬚⬚⬚⬚⬚⬚   Last _____   First _____

Question 1 3 Points	Write a **balanced nuclear equation** for the following:

a) $^{28}_{15}P$ undergoing positron emission: _____ = _____

b) $^{41}_{20}Ca$ undergoing electron capture: _____ = _____

c) $^{60}_{27}Co$ is **one of many radioactive isotopes** that **initially** can undergo **only one type**
of emission: _____ = _____

Question 2 5 Points	What is the **binding energy** in **kJ/mol nucleons** for **nitrogen-14?** The required masses (g/mol) are: $^{1}_{1}H$ = 1.00783 ; $^{1}_{0}n$ = 1.00867 ; $^{14}_{7}N$ = 14.00307 Remember the mass of $^{1}_{1}H$ also includes the mass of the electron. c = 2.998 × 10^8 m.s^{-1}

Question 3 2 Points	Radioactive **radon-222**, found in many homes, is a potential health hazard. The **half-life** of radon-222 is **3.82 days. How much time** is required for the activity of a sample of radon-222 to **fall to 8.82 percent of its original value?**