**10.2 – Extra Nuclear Chemistry Problems**

1. Compare and contrast the strong nuclear and electromagnetic forces. Discuss which force is stronger in the nucleus of an atom.

2. Compare and contrast nuclear fission and fusion. Explain their similarities and differences.

3. You have a 10 kg substance. How much energy would be produced if this mass was converted to energy? (c = 3.0 x 108)

4. When an atom goes through nuclear decay an atom splits into two. Discuss how the electromagnetic force and strong nuclear force play a role in this decay process.

5. A series of thermo-nuclear reactions which occur in the triggering of an H-bomb is known as the proton-proton chain reaction.  Two protons fuse to form a deuteron, 21H. This first reaction is a form of beta decay. This particle fuses with another proton to form helium, 32He.   This chain ends with this isotope fusing with another proton to form 42He. This final reaction is also a form of beta decay. Write out this three part series.

6. Consider these two particles.  Are they isotopes?   Why/why not?

https://lh6.googleusercontent.com/EoHztYxqNaE7hu4Lm-xZzCsuRTOvJ6d4hAAlZh9QZyslL2DenmgYFKWHwJi12r7FzynjNCxpCL_ItPplePKghfexAV1fEk42pW3BO2O5dLFFU2ixmeA

7. Consider these two particles.  Are they isotopes?   Why/why not?

https://lh5.googleusercontent.com/L7hw2LC0G_kin0eyUArv1O4Jo_lNxp3M0NbLt40ysxXHohhvPbwa4IJKtsv58PV8evJNPPz_fVxx_MqNg3ctmLRT8F8Vxl4CM5fzfXUN9SEvuuhdaig