**IB Physics**

**FA 30.2 - Nuclear Reactions**

Name

What you will miss the most about TuHS Physics

Murray Dedicated

**Show your work, circle your answers, and use sig figs to receive full credit.**

1 u = 1.6605E-27 kg = 931.5 MeV, 11H = 1.007825 u, 10n = 1.008665 u

1. What is the binding energy and the binding energy per nucleon of Ca-44?

2. Fill in the table (not all these reactions occur)

|  |  |  |  |
| --- | --- | --- | --- |
| 168O (, t) ??  179F | ?? (p , n) 23994Pu  23993Np | 168O (, ??) 1910Ne  10n | 2814Si (,n) 2815P  11p |

3. Find the Q value for this nuclear reaction: 73Li(t,n)94Be. Label the reaction as either energy requiring (endoergic) or energy releasing (exoergic) (you will have to look up the masses in the table...)

4-5: Consider this fission reaction: 23592U + 10n → 14857La + 8535Br + some neutrons

U-235 = 235.043923 u, La-148 = 147.932191 u, Br-85 = 84.915608 u (These masses will be given to you here)

4. How many neutrons are released? (3)

5. What is the Q value for this reaction?