

1. What provides (releases) more energy, an exothermic chemical reaction or an exothermic nuclear reaction? Why?

2. What is the difference between chemical reactions and nuclear reactions?

3. What force holds the nucleus of an atom together?

4.
a. What is nuclear fusion?

b. Up until what point on the Periodic Table of the Elements is nuclear fusion exothermic?

c. Why does fusion need extremely high temperatures and pressures in order to take place?

5. What is beta decay? Point out what is ejected during beta decay and what remains in the (or as the) nucleus.

6. Create an atomic nucleus as described below :

a. Start with the last two digits of your SEU ID number as the atomic number. If the last two digits are less than 26, add 26 to those digits and use the result as your atomic number.

Write the atomic number, elemental name, and mass (from your Periodic Table of the Elements) in the blanks below :

Last two digits of SEU ID : _____

Element : _____

Atomic number : _____

Atomic mass : _____

b. Add one neutron to the nucleus of your starting point. Write the results in the blanks below.

Element : _____

Atomic number : _____

Atomic mass : _____

c. Now, have your nucleus undergo beta decay. Write the results in the blanks below.

Element : _____

Atomic number : _____

Atomic mass : _____