

Assignment 5-2_b

Note: Ignore the definition of "radioactive decay" given on page 128. The decay of a neutron into a proton and an electron is just one form of radioactive decay known as "beta decay". There are three other forms of radioactive decay; positron decay, electron capture and alpha decay. All of these forms may result in the release of one or more gamma rays if the new nucleus has an excess of energy.

Name _____

Class Period _____

Date _____

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1. How many protons would it take to equal 1 gram of mass? _____
2. How many of these particles (from #1) does it take to make up a **neutron**? _____
3. Approximately how many electrons does it take to equal the mass of a **proton**? _____
4. If an atom has a total of **10 electrons**, how many energy levels does it have? _____
5. If an atom has a total of **12 electrons**, how many energy levels does it have? _____
6. How many energy levels are in an atom of fluorine? _____
7. How many electrons in an atom of uranium-238? _____
8. How many protons in an atom of uranium-238? _____
9. How many neutrons in an atom of uranium-238? _____

Note: The statement on page 126 "The third energy level can hold 18 electrons." is only true if there are more than three energy levels. The maximum number of electrons in an outside energy level is 8.

10. Name the three isotopes of the element hydrogen and describe the contents of each of their nuclei.

_____	_____
_____	_____
_____	_____

11. What is the name of the particles that make up protons and neutrons? _____
12. The atomic mass of hydrogen is about 1.00794 (AMUs). Why is it logical to assume that most hydrogen atoms have no neutrons?

13. What determines an element's bonding ability?

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14. What names are used to describe the various properties of **quarks**?

15. How many of each kind of quark are thought to exist?

16. What type of particles are composed of three quarks?

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