

Nuclear Chem Article Questions [10 pts]
C-14 Dating

Name _____
Period ____ Date _____

Article: Carbon-14 Dating *Chem Matters, Feb 1989*

- 1) C-14 in the atmosphere:
 - a) Describe the process that causes C-14 to be constantly formed in the upper atmosphere.

 - b) Write the nuclear equation for the formation of C-14 in the upper atmosphere. (End of p.12)

 - c) C-14 is also constantly decaying because it is radioactive. Write the nuclear equation for the natural radioactive decay of C-14. (Top of p. 13)

 - d) Explain why the C-14 concentrations stay relatively constant in the atmosphere.

- 2) Living things are constantly taking in a new supply of C-14 as long as they are alive.
 - a) Explain how living plants constantly take in C-14.

 - b) How do living animals constantly take in C-14?

- 3) Why does the amount of C-14 stay relatively constant in an organism as long as it is alive? (*This is the constancy assumption.*)

- 4) Why does the amount of C-14 start to decrease when an organism dies? (*Do not use the word, "disintegrates."*)

- 5) Why is it important to verify C-14 levels by counting the growth rings of trees?

- 6) Why can it be beneficial to use a mass spectrometer to detect C-14 levels of artifacts instead of using traditional C-14 dating?