

Supplementary Problems (S-):

71. The half life of C^{14} is 5730 years.

a) What is the decay constant for C^{14} ?

b) The ratio of C^{14} to C^{12} in the atmosphere is 1.3×10^{-12} . What is the present activity of a 12 gram sample of carbon taken from a "modern" bone?

c) A 12 gram sample of carbon taken from a bone at an archeo- logical site has an activity of 35 counts per minute. Assuming that C^{14} was formed at the same rate then as it is now, how old is the bone?

ANSWERS TO SUPPLEMENTARY PROBLEMS:

71. a) $1.21 \times 10^{-4} / \text{yr} = 2.30 \times 10^{-10} / \text{min}$; b) 179.4 counts/min; c) 13,510 yrs.