

HOMework 11
X-ray Analysis

1. What is the wavelength range of X-radiation? _____ to _____ nm
2. Hard x-rays are at which end of this range? _____
3. Which type (hard or soft) X-radiation is used in X-ray crystallography? _____
4. Which type (hard or soft) X-radiation is more dangerous? _____
5. Calculate the energy (in kV) needed to produce λ values of:
A. 0.200 nm C. 0.070 nm
B. 0.125 nm D. 0.050 nm
6. Calculate the shortest wavelength of x-radiation that would be produced for each of the voltages listed below.
A. 20 kV C. 40 kV
B. 30 kV D. 50 kV
7. Use the Bragg equation to calculate d if $\lambda = 0.100$ nm and theta is as listed below. Assume $n = 1$.
A. 10° C. 30°
B. 20° D. 40°
8. If $\lambda = 0.080$ nm and $d = 0.170$ nm what is θ for each of the values of n listed below. If no reflection exists, state "no reflection possible".
A. 1 D. 4
B. 2 E. 5
C. 3

Show work on another page. Please attach this page as the top page of your assignment.

Homework Grade Summary

Score _____/210

Percent _____

Grade _____

Homework is 10% of your final grade, two-thirds of a midterm.