1. Mo k-series radiation has an absorption edge corresponding to a wavelength of 0.61977 Å. The $k_\alpha_1$ line has a wavelength of 0.70926 Å and the $k_\beta_1$, a wavelength of 0.63225 Å.

   A. What is the minimum potential in KV that can be used to produce Mo k-series radiation from a Mo-target X-ray tube?

   B. What is the frequency of Mo $k_\beta$ radiation?

   C. Nb has an absorption edge corresponding to a wavelength of 0.65291 Å. Can Nb be used as a $\beta$-filter for Mo radiation? Why?
2. Barite (BaSO$_4$) has orthorhombic cell edges $a = 7.157$ Å, $b = 8.884$ Å, and $c = 5.457$ Å. Calculate $2\theta$ for CuK$_\alpha$ radiation $\lambda = 1.5405$ Å) for the following X-ray diffractions:
   a. (002)
   b. (110)
   c. (021)
   d. (111)
   e. (301)