1) For a tetragonal unit cell, select the appropriate statement regarding the length of the cell side lengths and cell angles.
   a. \( a = b = c; \alpha \neq \beta \neq \gamma \)
   b. \( a \neq b \neq c; \alpha \neq \beta \neq \gamma \)
   c. \( a = b \neq c; \alpha \neq \beta \neq \gamma \)
   d. \( a = b = c; \alpha = \beta = \gamma \)
   e. \( a = b \neq c; \alpha = \beta = \gamma \)

2) In the lecture, it was shown that the (100) reflection of poly(3-dodecylthiophene) (P3DDT) was at a q-value that was smaller in magnitude than that of the (100) reflection of poly(3-hexylthiophene) (P3HT). This means that the dimension of the (100) reflection of P3HT is which of the following relative to the dimension of the (100) reflection of P3DDT?
   a. larger than
   b. equal to
   c. smaller than
   d. Not enough information to determine

3) In poly(3-hexylthiophene) (P3HT) the scattering vector for the (100) plane is at ~4 nm\(^{-1}\). Calculate the spacing between the crystal planes in this crystal direction.
   a. 1.81 nm
   b. 0.86 nm
   c. 1.39 nm
   d. 2.62 nm
   e. 1.57 nm