(1) i: (10 points) Sketch the BCC(002) surface (as viewed from along the surface normal).

ii: (15 points) On your sketch of the surface, label the [100], [010], [001], [110] and [210] directions.

iii: (15 points) If the dimension of the bulk unit cell (BCC), \( a_0 = 3.16 \, \text{Å} \), what is the nearest neighbor distance? What is the nearest neighbor distance (in atoms·cm\(^{-2}\)) for the BCC(002) surface?

(2) Give the Low Energy Electron Diffraction pattern for the following adsorbate structures:

(30 points) FCC(100) Surface:

(30 points) FCC(110) Surface: