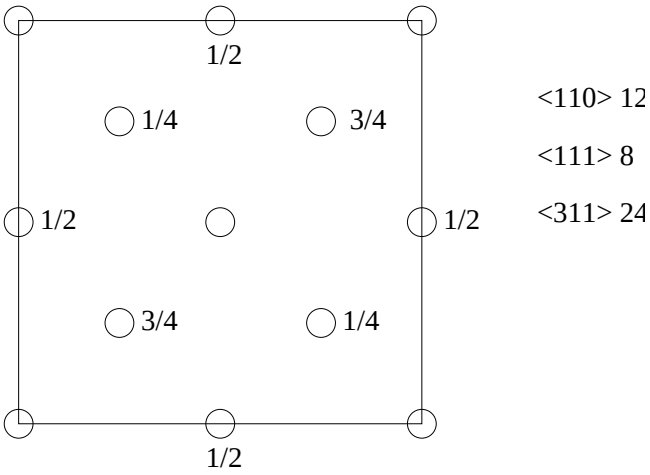
Question A2:

Crystals: translational symmetry, long and short range order, anisotropic.

Glasses: short range order, no long range order. isotropic.

Physical properties: heat flow, optical properties, elastic constant, diffusion can be anisotropic.

Crystalline Si:



Neighbours :

4 neighbours at $[\frac{1}{4}\frac{1}{4}\frac{1}{4}]$: $\frac{a\sqrt{3}}{4} = 2.347\mathring{A}$

12 neighbours at $[\frac{1}{2}\frac{1}{2}0]$: $\frac{a}{\sqrt{2}} = 3.833\mathring{A}$

12 neighbours at $[\frac{3}{4}\frac{1}{4}\frac{1}{4}]$: $\frac{a}{\sqrt{11}} = 4.494\mathring{A}$