5). Calculate the d of three important planes (100), (110), 111 of scc.

$$d_{100} = \frac{a}{\sqrt{1^2+0+0}} \Rightarrow a$$

$$d_{110} = \frac{a}{\sqrt{1^2+1^2+0}} \Rightarrow \frac{a}{\sqrt{2}}$$

$$d_{111} = \frac{a}{\sqrt{1^2+1^2+1^2}} = \frac{a}{\sqrt{3}}$$

⑥. The distance b/w (110) plane in a BCC structure is 2.03 Å. What is the size of unit cell,

$$d_{110} = 2.03\ \text{Å}$$

$$d_{110} = \frac{a}{\sqrt{1^2+1^2+0^2}} \Rightarrow \frac{a}{\sqrt{2}}$$

$$2.03 \times 10^{-10} \times \sqrt{2} = a$$

$$2.87\ \text{Å} = a$$

⑦ Show that for a scc $d_{100} : d_{110} : d_{111} : \sqrt{6} : \sqrt{3} : \sqrt{2}$

$$d_{110} = \frac{a}{\sqrt{1^2+1^2+0}} \Rightarrow \frac{a}{\sqrt{2}}$$

$$d_{100} = \frac{a}{\sqrt{1^2+0+0}} = a$$

$$d_{111} = \frac{a}{\sqrt{1^2+1^2+1^2}} = \frac{a}{\sqrt{3}}$$

R.H.S x by $\sqrt{6}$

$$\frac{\sqrt{6}a}{\sqrt{2}} : \sqrt{6}a : \frac{\sqrt{6}a}{\sqrt{3}}$$

$\div a$

$$\sqrt{3}a : \sqrt{6} : \sqrt{2} \quad //$$