SNS COLLEGE OF TECHNOLOGY

(AN AUTONOMOUS INSTITUTION)

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Approved by AICTE, New Delhi .Affiliated to Anna University, Chennai

Accredited by NBA & accredited by NAAC with 'A+' Grade, Recognized byUGC

1. Calculate the d of three important planes (100), (110), 111 of sec.

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

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

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

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

$$d_{110} = 2.03 \, \mathring{A}$$

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

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

$$\boxed{2.87 \, \mathring{A} = a}$$

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

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

$$d_{100} = \frac{a}{\sqrt{1+00}} = a$$

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

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

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

$$\div a$$

$$\underline{\sqrt{3}a \quad \sqrt{6} \quad \sqrt{2}} //.$$