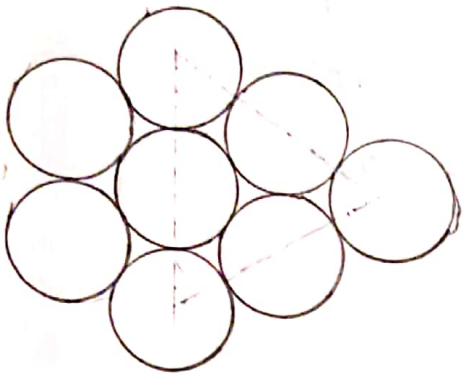
3) Fcc :-

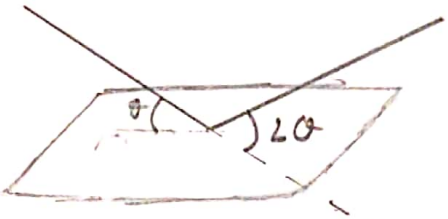
i) (111)

by using $\theta = \sin^{-1}\left(\sqrt{\frac{\lambda^2 \cdot (h^2+k^2+l^2)}{4a^2}}\right)$



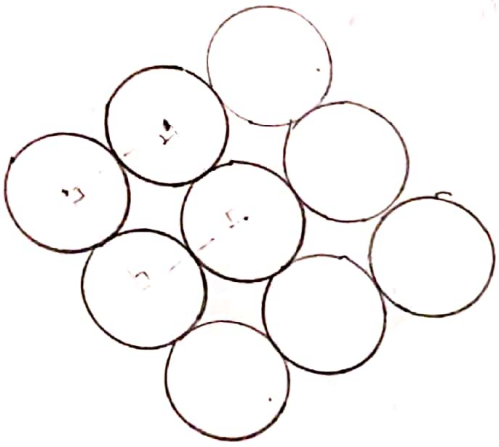
$\theta = 22.21$

$2\theta = 044.42$



In every plane

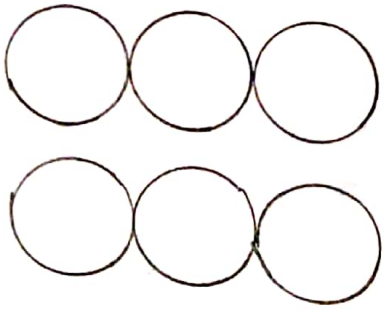
ii) (200)



$\theta = 25.88$

$2\theta = 51.76$

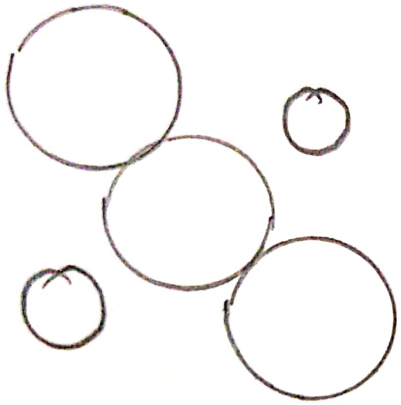
iii) (220)



$\theta = 38.12$

$2\theta = 76.24$

iii) (311)

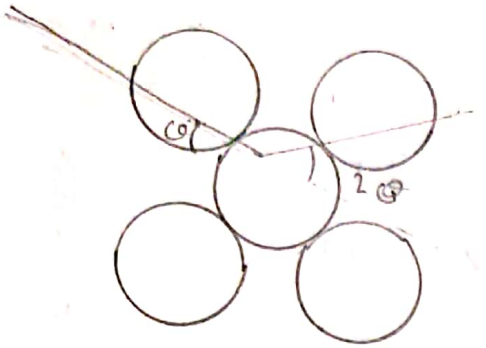


$\theta = 46.37^\circ$

$2\theta = 92.74^\circ$

; BCC)

i) (1 1 0)

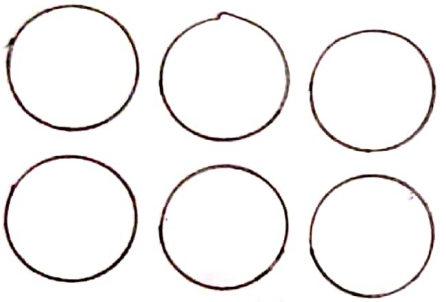


(Since the planes are 2d light will come from outside the plane)

$2\theta = 40^\circ$

$\theta = 20^\circ$

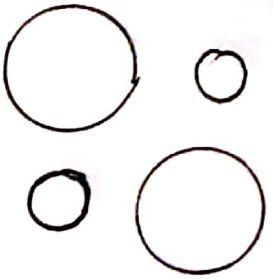
ii) (2 0 0)



$2\theta = 58^\circ$

$\theta = 29^\circ$

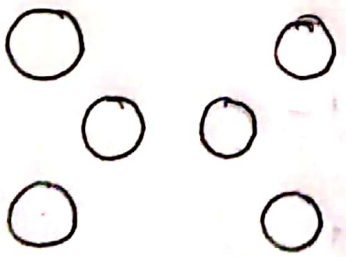
iii) (2 1 1)



$2\theta = 73^\circ$

$\theta = 36.5^\circ$

iv) (2 2 0)



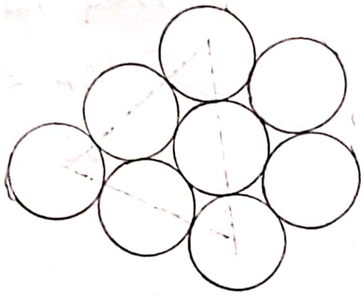
$2\theta = 86.8^\circ$

$\theta = 43.4^\circ$

3) Fcc :-

i) (111)

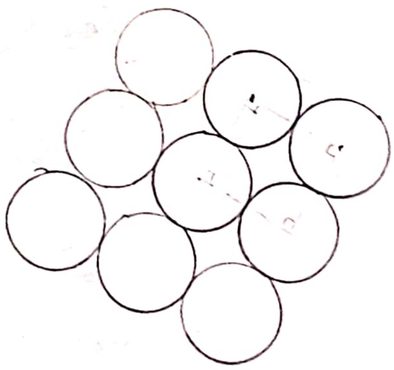
by using $\theta = \sin^{-1}\left(\sqrt{\frac{\lambda^2 (h^2+k^2+l^2)}{4a^2}}\right)$



$\theta = 22.21$

$2\theta = 44.42$

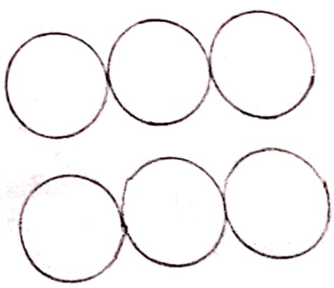
ii) (200)



$\theta = 25.88$

$2\theta = 51.76$

iii) (220)



$\theta = 38.12$

$2\theta = 76.24$