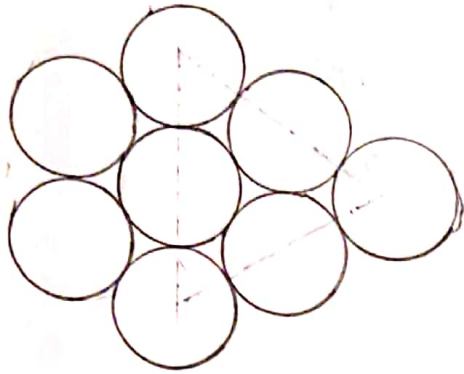


3) Fcc :-

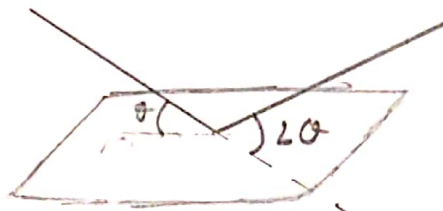
i) (111)

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



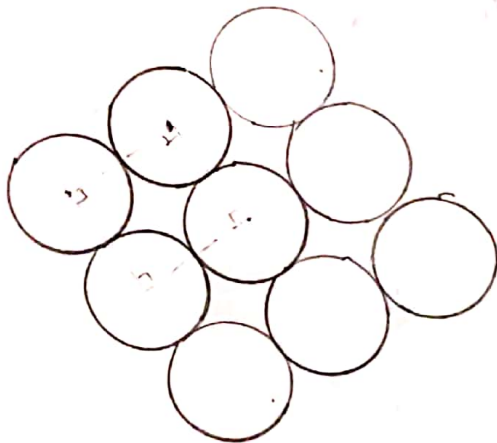
$$\theta = 22.21$$

$$2\theta = 44.42$$



In every plane

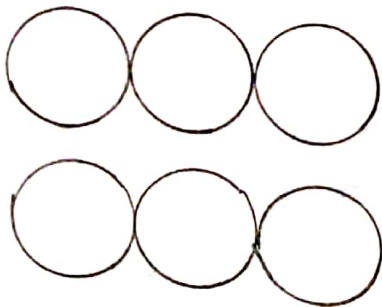
ii) (200)



$$\theta = 25.88$$

$$2\theta = 51.76$$

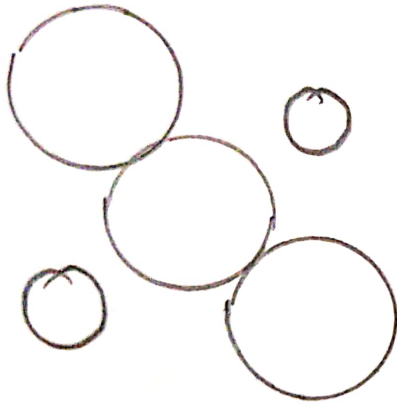
iii) (220)



$$\theta = 38.12$$

$$2\theta = 76.24$$

iii)  $(311)$

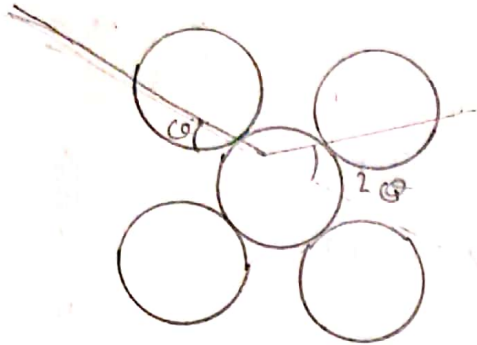


$$\theta = 46.37^\circ$$

$$2\theta = 92.74^\circ$$

i) BCC)

i) (110)

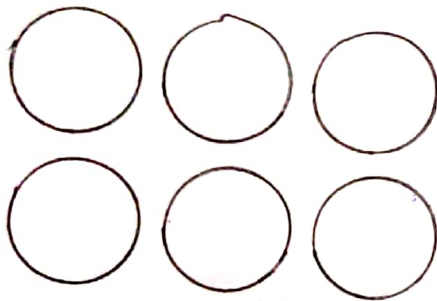


(Since the planes are 2d  
light will come from outside  
the plane)

$$2\theta = 40^\circ$$

$$\theta = 20^\circ$$

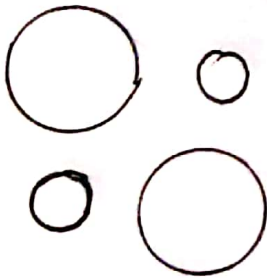
ii) (200)



$$2\theta = 58^\circ$$

$$\theta = 29^\circ$$

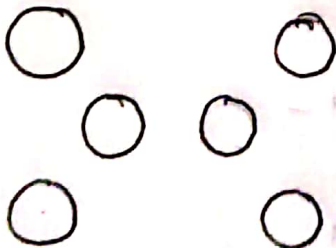
iii) (211)



$$2\theta = 73^\circ$$

$$\theta = 36.5^\circ$$

iv)



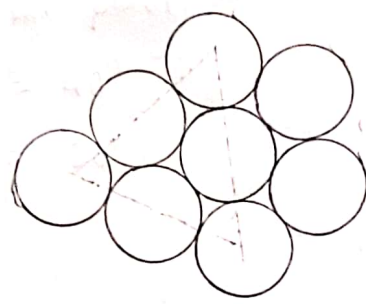
(2 2 0)

$$2\theta = 86.8^\circ$$

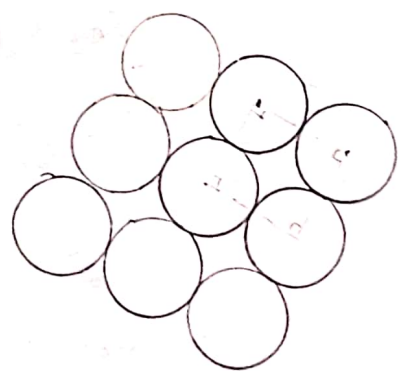
$$\theta = 43.4^\circ$$

3) FCC :-

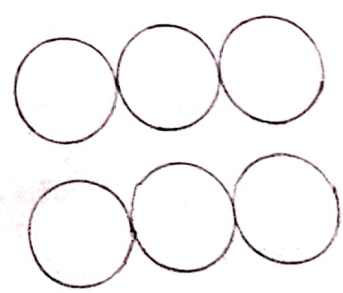
i) (111)



ii) (200)



iii) (220)



$$\left( \frac{h^2 + k^2 + l^2}{a^2} \right)^{-1/2} = \sin \theta$$

$$\theta = 55.51^\circ$$

$$\sin \theta = 0.824$$



$$\theta = 52.88^\circ$$

$$\sin \theta = 0.798$$

$$\theta = 38.15^\circ$$

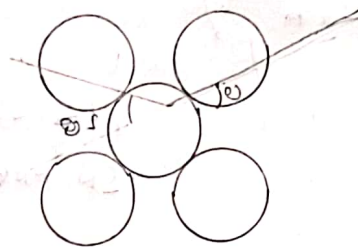
$$\sin \theta = 0.619$$



(Sum of squares in each  
 class will come from center  
 of mass)

$$50 = 100$$

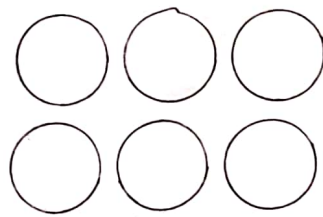
$$0 = 50$$



(i) (110)

$$50 = 280$$

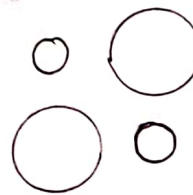
$$0 = 50$$



(ii) (500)

$$50 = 380$$

$$0 = 300$$



(iii) (550)

$$50 = 880$$

$$0 = 400$$

