

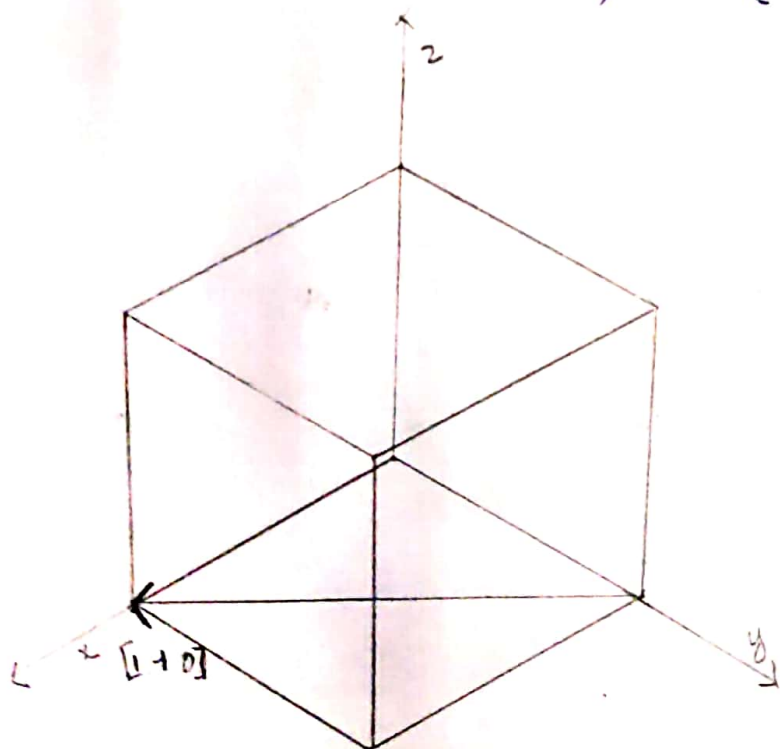
Q1) a) For the miller indices of line of intersection of planes  $(-1 -1 1)$  and  $(-1 -1 -1)$  in a cubic system: -

We know that the line of intersection would be parallel to ~~be~~ both the planes.

Now, we know that miller indices in a cubic crystal system represent the normal to that plane.

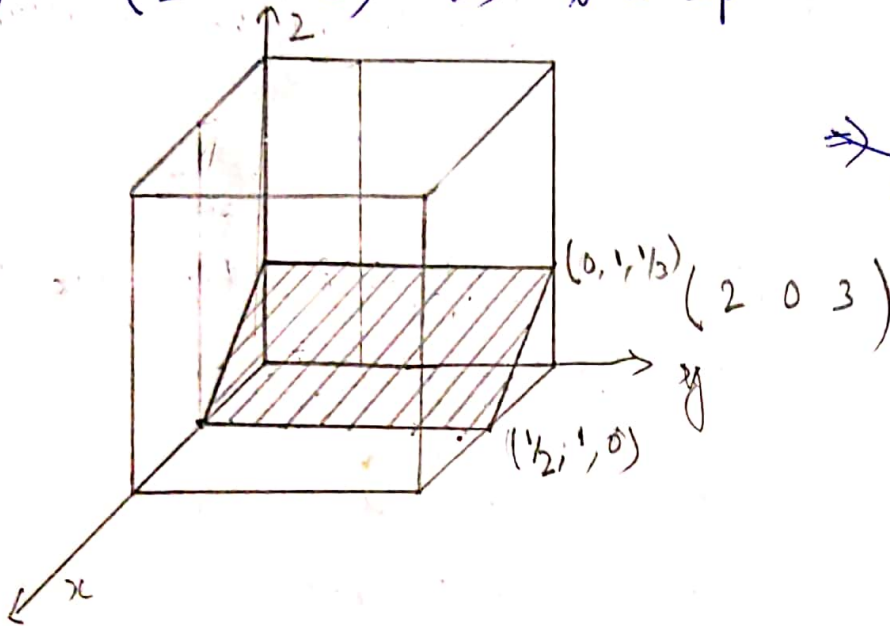
$\therefore$  The miller indices of line of intersection would be  $(n_1 \times n_2)$  (cross product)

$$\therefore (-1 -1 1) \times (-1 -1 -1) = [2 -2 0] \\ = [1 -1 0]$$



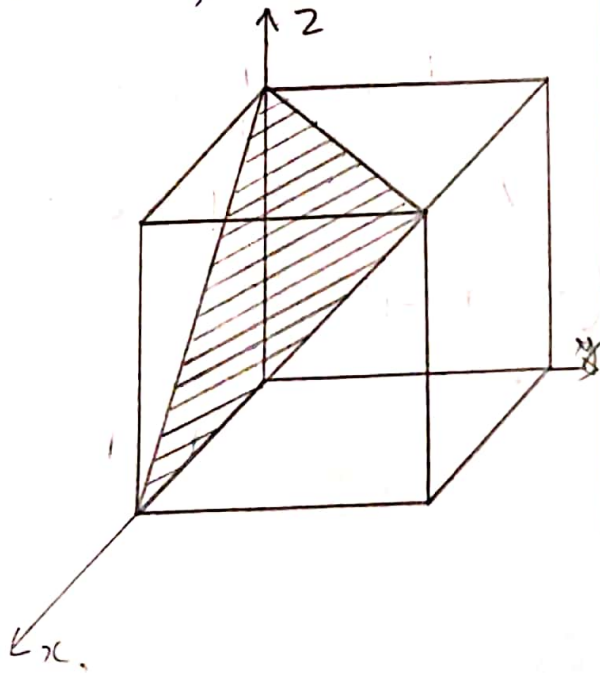
1) b)

i)  $(2 \ 0 \ 3) \Rightarrow \text{intercepts} = (\frac{1}{2} \ \infty \ \frac{1}{3})$

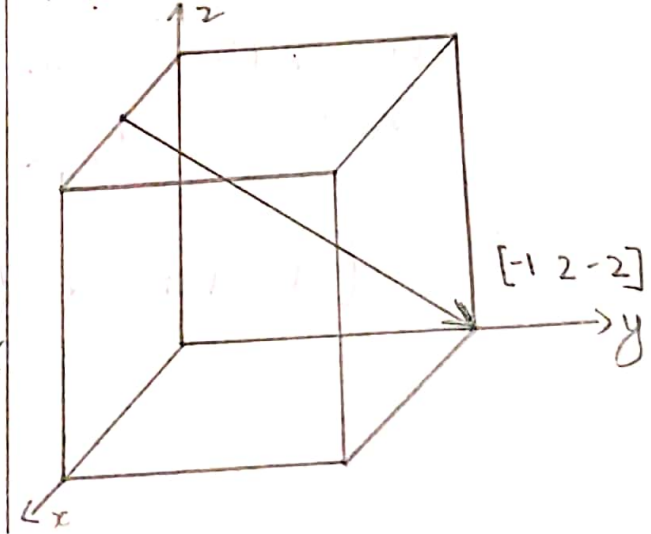


~~$\Rightarrow (1 \ \infty \ \frac{2}{3})$~~

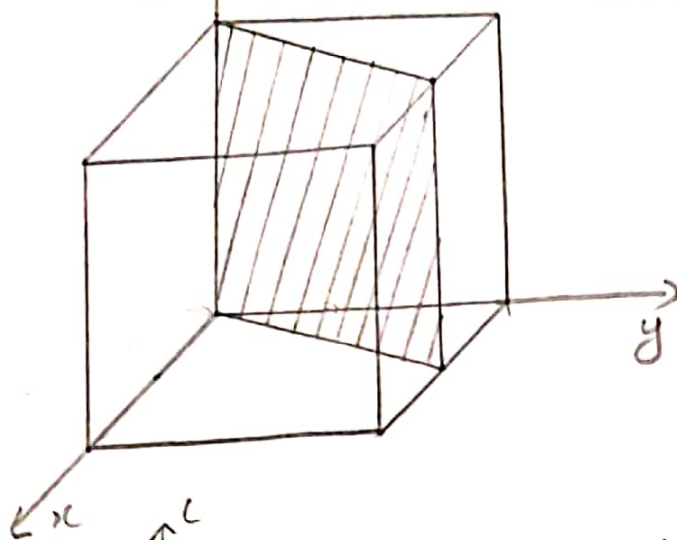
ii)  $(-1 \ 1 \ -1)$



iii)  $[-1 \ 2 \ -2] = [-\frac{1}{2} \ 1 \ -1]$

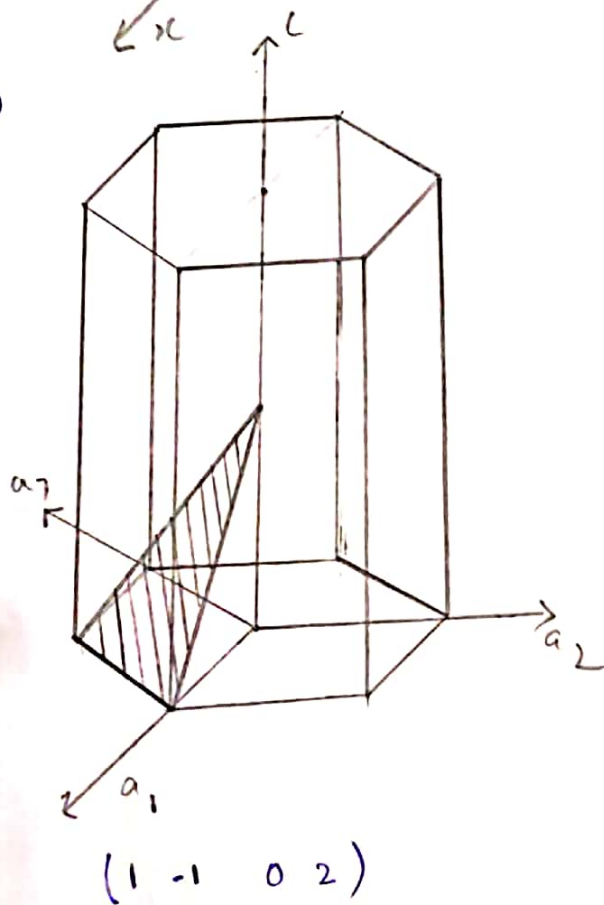


iv)  $(2 \ -1 \ 0)$



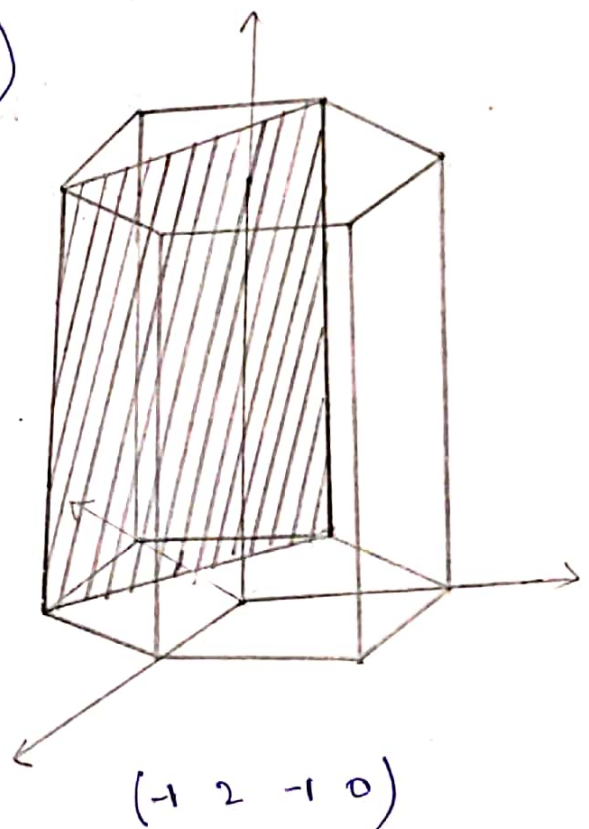
intercepts =  ~~$(1 \ -1 \ 0)$~~   
 $(\frac{1}{2} \ -1 \ 0)$

v) i)



$\Rightarrow$  Intercepts  $(1 \ -1 \ 0 \ \frac{1}{2})$

ii)



$\Rightarrow$  Intercepts  $(-1 \ \frac{1}{2} \ -1 \ 0)$