

(i) Tendency of mutual attraction (A.F.)

(ii) Tendency of escape to each other (R.F.)

(a)  $A.F. \gg R.F. \Rightarrow$  Solid phase

(b)  $A.F. > R.F. \Rightarrow$  Liquid phase

(c)  $A.F. \ll R.F. \Rightarrow$  Gas phase

## Types of Solids :-

On the basis of arrangement of particles.

Solids are classified into two categories -

### (1) Amorphous Solids :-

Solids which does not have regular/  
fixed arrangements of particles

(2) Crystalline Solids =

Solids which have regular/fixed arrangement of particles.

## Amorphous Solids

Irregular arrangements of particles.



## Crystalline Solids

Regular arrangements of particles.



2) Shape Irregular Shape

Regular Shape

3) Range of Short  
arrangements Range

Long range  
Order

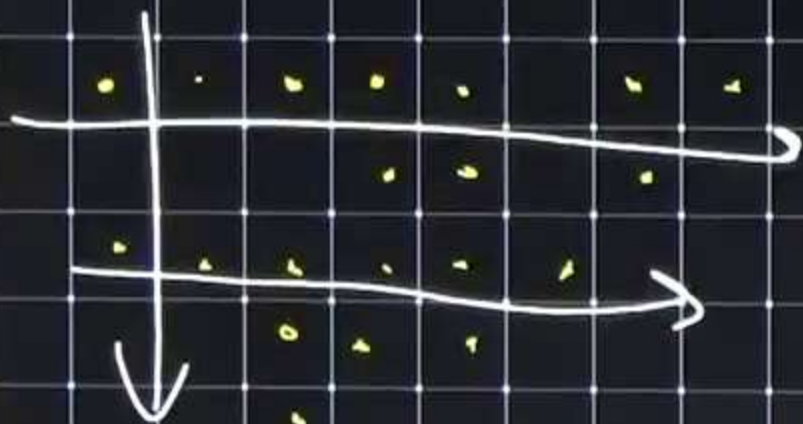
4) Cutting Cutting with  
prop irregular  
surface

Cutting with sharp  
Edge tool & it cut into  
pieces with smooth surface

(5)

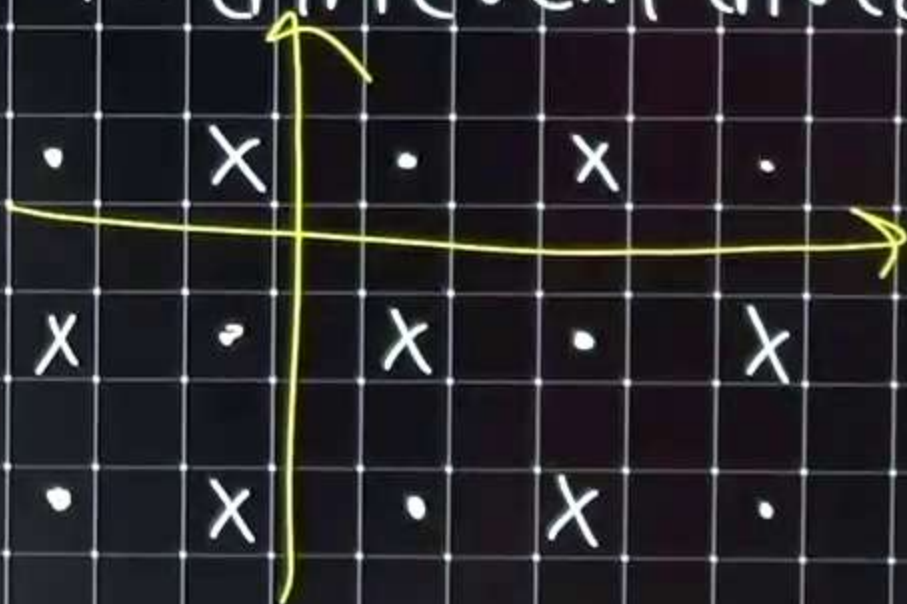
Isotropic in  
nature

Same value in  
different direction



Anisotropic  
in nature.

Different value  
in different direction



Ex: Rubber, plastic, glass

ABLES KOTA  
Diamond, metal,

NaCl crystal,

CSCl — " —

General terms to related  
Crystalline solids

Space Lattice =  
3-D

Regular arrangements of points in  
space

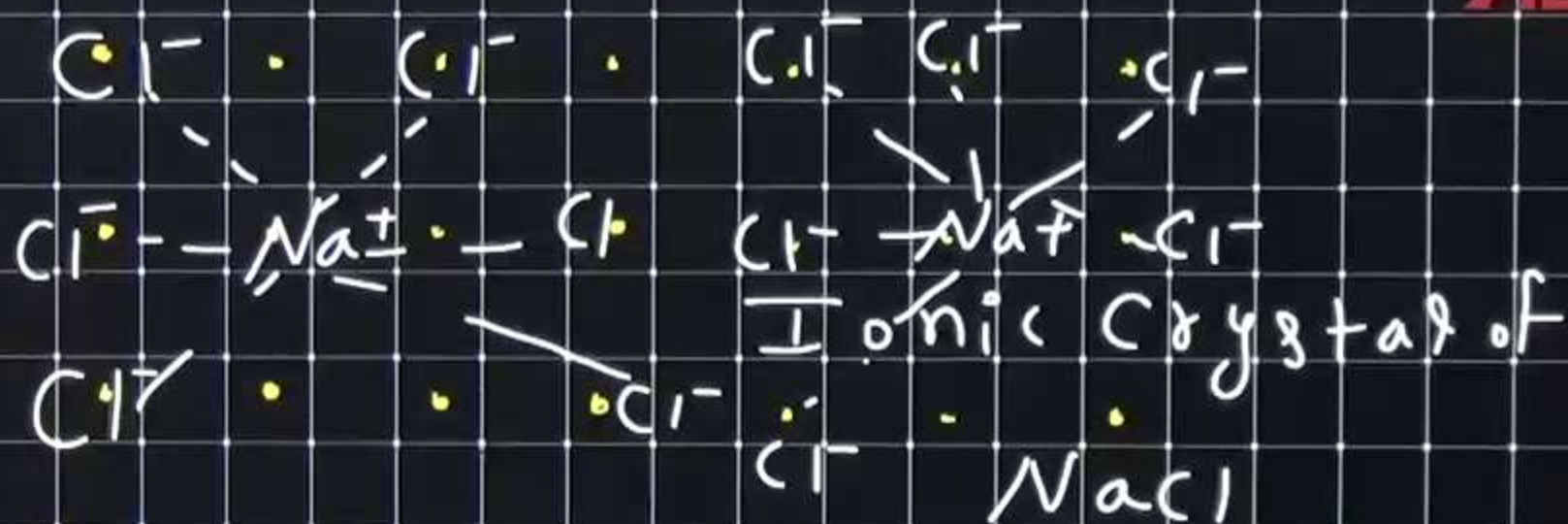
each point in  
space is

k/a Lattice  
point.

Crystal Lattice =

When all the points of space lattice  
are replaced by atoms/ions/molecules





Unit Cell :-

Smallest repeating unit in any crystal which on repetition again and again generates the all lattice is called Unit Cell.

Unit cell has same property as entire crystal. and there are infinite unit cell in any crystal

There are two types of unit cell.

(1) Primitive / Simple U.C. :-

Unit cell in which lattice points are only at corner

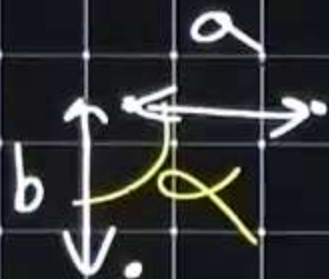
(2) Non primitive U.C.

U.C. in which lattice points are present at corner as well as Body center or face centre or End centre.

- (i) Corner + Body Centre  $\Rightarrow$  Body Centre U.C.
- (ii) Corner + <sup>every</sup> Face Centre  $\Rightarrow$  Face Centre U.C.
- (iii) Corner + any two opposite Face Centre  $\Rightarrow$  End Centre U.C.



(2) 2-D-Lattice = (along plane)



3 parameter required

2 - distance & 1 - angle.