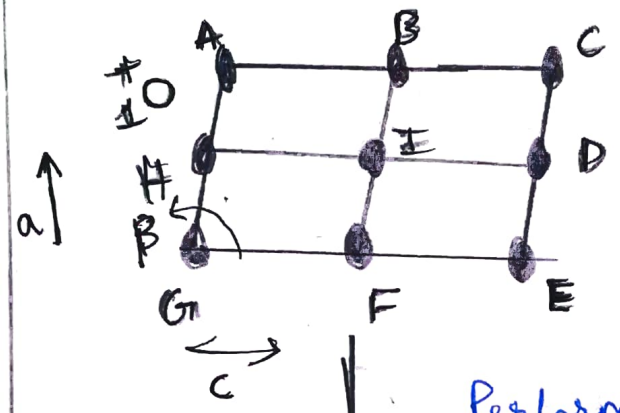
BY: S. VISHAL
CH18B020

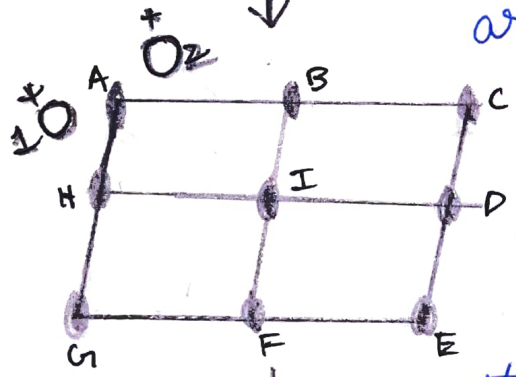
(3)



● indicates C_2 symmetry

Perform C_2 symmetry operation around A.

We obtain atom '2'.



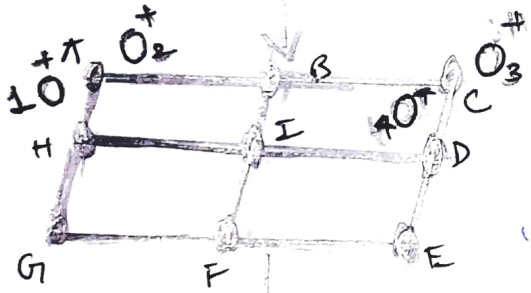
Perform C_2 symmetry operation around 'B' for atoms 1 & 2.

We obtain atoms 3 and 4.

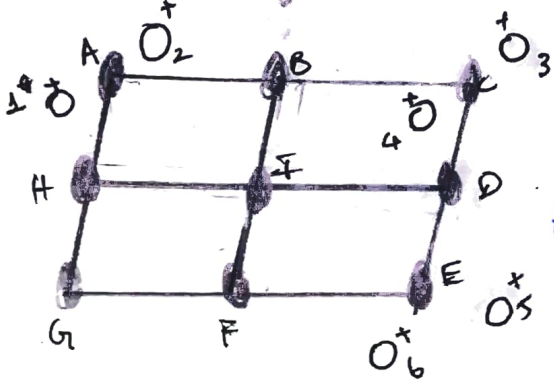
'1' corresponds to '3'

'2' corresponds to '4'

Also C_2 symmetry at C is automatically satisfied by '3' and '4'



Perform C_2 symmetry for 3 and 4 about D.



We obtain atoms 5 and 6.

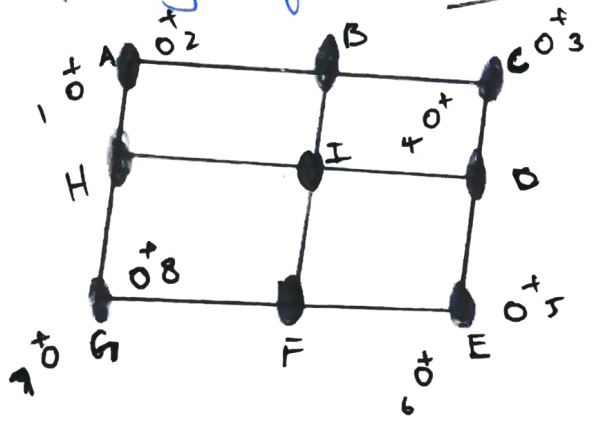
Atom '3' corresponds to '6'

Atom '4' corresponds to '5'.

Further atoms '5' and '6' exhibit C_2 symmetry about E. They also automatically satisfy C_2 Symmetry about I with '1' and '2'.

'1' → '6' & '2' corresponds to '5'.

Finally after a C_2 operation about F,



We generate atoms 7 and 8.

Atom 5 corresponds to 7

Atom 6 corresponds to 8.

Further, 7 and 8 satisfy C_2 operation about G7.

(7, 8) and (1, 2) satisfy C_2 operation about H.

1 corresponds to 8 and 2 corresponds to 7.

And also atoms (3, 4), (7, 8) satisfy C_2 symmetry about I.

7 corresponds to 3, and 8 corresponds to 4.

∴ Using the given symmetry operations we have generated 8 atoms!