

## Questions with Answer Keys

MathonGo

## Q1: 16 March (Shift 1) - Numerical

A certain element crystallises in a bcc lattice of unit cell edge length  $27\sqrt{AA}$ . If the same element under the same conditions crystallises in the fcc lattice, the edge length of the unit cell in  $\sqrt{AA}$  will be \_\_\_\_\_. (Round off to the Nearest Integer).

[Assume each lattice point has a single atom]

[ Assume  $\sqrt{3} = 1.73, \sqrt{2} = 1.41$  ]

## Q2: 16 March (Shift 2) - Numerical

Ga (atomic mass 70u ) crystallizes in a hexagonal close packed structure. The total number of voids in 0.581 g of Ga is  $\times 10^{21}$ . (Round off to the Nearest Integer).

## Q3: 17 March (Shift 1) - Single Correct

A colloidal system consisting of a gas dispersed in a solid is called a/an:

- (1) solid sol
- (2) gel
- (3) aerosol
- (4) foam

## Q4: 18 March (Shift 1) - Single Correct

In a binary compound, atoms of element A

form a hcp structure and those of element M

occupy  $2/3$  of the tetrahedral voids of the hcp structure. The formula of the binary compound is :

- (1)  $M_2 A_3$
- (2)  $M_4 A_3$
- (3)  $M_4 A$
- (4)  $MA_3$  Official Ans. by NTA (2)

