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CLASS – XII

HOLIDAY HOMEWORK CHEMISTRY

(1) Calcium metal crystallizes in a face centered cubic lattice with edge length of 0.556nm. Calculate the density of metal if it contains (1) 0.5% Frenkel defects (2) 0.2% Schottky defects

(2) Aluminium crystallizes in a cubic close packed structure. Its metallic radius is 125pm.

(a) What is the length of the side of the unit cell?

(b) How many unit cells are there in 100 cm³ of Aluminium

(3) Ferric oxide crystallizes in a hexagonal close packed array of oxide ions with two out of every three octahedral holes occupied by ferric ions. Derive the formula of the ferric oxide.

(4) What type of defect can arise when a solid is heated? Which physical property is affected by it and in what way?

(5) Why does Frenkel defect do not change the density of AgCl crystals?

(6) Explain the nature of crystal defect produced when sodium chloride is doped with magnesium chloride?

(7) Briefly explain what do you understand by F-Centre?

(8) Classify the following solids on bonding considerations: CO₂, MgO, Al, H₂, Si, Gd, Pb, AgCl

(9) Account for the following

(a) Silicon is an insulator but silicon doped with phosphorus act as a semi-conductor.

(b) Some of the glass objects recovered from ancient monuments look milky instead of being transparent?

(10) How would you account for the following?

(a) Frenkel defects are not found in alkaline metal halides.

(b) Schottky defects lower the density of related solids.

(11) NCERT textbook questions 2.1, 2.2, 2.4.