



# INDIAN SCHOOL DARSAIT

## DEPARTMENT OF CHEMISTRY



Subject : CHEMISTRY	Topic : SOLID STATE	Date of Worksheet : 27. 3.2018
Resource Person: SREEKALA M	Date : _____	
Name of the Student : _____	Class & Division : XII	Roll Number :-----

1	How many atoms are there in one unit cell of a i) body centered cubic crystal ii) face-centered cubic crystal iii) simple cubic crystal	1
2	What is meant by an 'intrinsic semiconductor'?	1
3	"Crystalline solids are anisotropic in nature" What does it mean?	1
4	What type of alignment in crystals makes them ferromagnetic?	1
5	State a feature to distinguish a metallic solid from an ionic solid. How do they differ in conducting electricity?	1
6	Why LiCl acquire pink colour when heated in Li vapours?	1
7	What are 12-16 and 13-15 compounds?	1
8	What is the effect of Schottky and Frenkel defects on the density of crystalline solids?	1
9	Analysis show that FeO has a non-stoichiometric composition with formula $\text{Fe}_{0.95}\text{O}$ . Give reason.	1
10	What happens when a ferromagnetic substance is subjected to high temperature?	1
11	Calculate the efficiency of packing in case of a metal crystal for cubic close packed structure.	2
12	Give reason a) Why is Frenkel defect found in AgCl? b) What is the difference between Phosphorous doped semiconductor and Boron doped semiconductor?	2
13	KF has ccp structure. Calculate the radius of unit cell if the edge length is 400pm. How many $\text{F}^-$ ions and octahedral voids are there in this unit cell?	2
14	What is a semiconductor? Describe the two main types of semiconductor.	2
15	What is the radius of sodium if it crystallises in bcc structure with the cell edge of 400pm?	2
16	Sodium crystallizes in a bcc unit cell. Calculate the approximate number of unit cells in 9.2 g of sodium? (Atomic mass of Na=23u)	3
17	Iron has a body-centered cubic unit cell with a cell edge of 286.6 pm. The density of iron is $7.87 \text{ gm}^{-3}$ . Use this information to calculate Avogadro's number. (Atomic mass of Fe = 56 $\text{g mol}^{-1}$ )	3

