

DPP

DAILY PRACTICE PROBLEMS

CLASS : XIIth

DATE :

SUBJECT : CHEMISTRY

DPP No. : 2

Topic :- THE SOLID STATE

- The radius ratio of CsCl is 0.93. The expected lattice structure is
 - Tetrahedral
 - Square planar
 - Octahedral
 - Body centred cubic
- Which one of the following defects in the crystals lowers its density?
 - Frenkel defect
 - Schottky defect
 - F-centres
 - Interstitial defect
- The yellow colour of ZnO and conducting nature produced in heating is due to:
 - Metal excess defects due to interstitial cation
 - Extra positive ions present in an interstitial site
 - Trapped electrons
 - All of the above
- A metal has bcc structure and the edge length of its unit cell is 3.04 \AA . The volume of the unit cell in cm^3 will be
 - $1.6 \times 10^{-21} \text{ cm}^3$
 - $2.81 \times 10^{-23} \text{ cm}^3$
 - $6.02 \times 10^{-23} \text{ cm}^3$
 - $6.6 \times 10^{-24} \text{ cm}^3$
- The edge length of a face centred cubic cell of an ionic substance is 508 pm. If the radius of the cation is 110 pm, the radius of the anions is
 - 288 pm
 - 398 pm
 - 618 pm
 - 144 pm
- An ionic compound is expected to have tetrahedral structure if r_+/r_- lies in the range of
 - 0.414 to 0.732
 - 0.225 to 0.414
 - 0.155 to 0.225
 - 0.732 to 1
- The interparticle forces in solid hydrogen are :
 - Hydrogen bonds
 - Covalent bonds
 - Co-ordinate bonds
 - Van der Waals' forces
- If Z is the number of atoms in the unit cell that represents the closest packing sequence $-ABC\ ABC-$, the number of tetrahedral voids in the unit cell is equal to :
 - Z
 - 2Z
 - $\frac{Z}{2}$
 - $\frac{Z}{4}$
- Quartz is an example of :
 - Chain silicate
 - Infinite sheet silicate
 - Framework silicate
 - Cyclic silicate
- For AX ionic crystal to exist in bcc structure, the ratio of radii $\left(\frac{r_{\text{cation}}}{r_{\text{anions}}}\right)$ should be
 - Between 0.41 and 0.73
 - Greater than 0.73
 - Less than 0.41
 - Equal to 1.0
- Which crystal is expected to be soft and have low melting point?
 - Covalent
 - Metallic
 - Molecular
 - Ionic
- The elements commonly used for making transistors are
 - C and Si
 - Ga and In
 - P and As
 - Si and Ge
- Silver (atomic weight = 108 g mol^{-1}) has a density of 10.5 g cm^{-3} . The number of silver atoms on a surface of area 10^{-12} m^2 can be expressed in scientific notation as $y \times 10^x$. The value of x is
 - 3
 - 5
 - 7
 - 9
- The first order reflection ($n = 1$) from a crystal of the X-ray from a copper anode tube ($\lambda = 1.54 \text{ \AA}$) occurs at an angle of 45° . What is the distance between the set of plane causing the diffraction?
 - 0.1089 nm
 - 0.1089 m
 - 0.905 \AA
 - $1.089 \times 10^{-9} \text{ m}$
- What is the number of tetrahedral voids per atom in a crystal?



- a) 1 b) 2 c) 6 d) 8
16. Iodine is a
a) Electrovalent solid b) Atomic solid c) Molecular solid d) Covalent solid
17. In CsCl type structure the coordination number of Cs^+ and Cl^- are
a) 6, 6 b) 6, 8 c) 8, 8 d) 8, 6
18. Structure of a mixed oxide is cubic close-packed (c.c.p). The cubic unit cell of mixed oxide is composed of oxide ions. One fourth of the tetrahedral voids are occupied by divalent metal A and the octahedral voids are occupied by a monovalent metal B . The formula of the oxide is :
a) $AB O_2$ b) A_2BO_2 c) $A_2B_3O_4$ d) AB_2O_2
19. The example of orthosilicate is :
a) $\text{MgCaSi}_2\text{O}_6$ b) Mg_2SiO_4 c) $\text{Fe}_2\text{O}_3\text{SiO}_2$ d) $\text{Ba}_3\text{Al}_2\text{Si}_6\text{O}_8$
20. A compound CuCl has face centred cubic structure. Its density is 3.4 g cm^{-3} . The length of unit cell is :
a) 5.783\AA b) 6.783\AA c) 7.783\AA d) 8.783\AA

