

## Chemistry Worksheets Class 12 on Chapter 1 Solid State - Set 5

**Q-1:** Total volume occupied by the atoms of a metal in a FCC unit cell is:

- a.)  $(12/3)\pi r^3$
- b.)  $(16/3)\pi r^3$
- c.)  $(20/3)\pi r^3$
- d.)  $(24/3)\pi r^3$

**Q-2:** The alkali metal halides appear coloured because:

- a) F-centres
- b) Frenkel Defect
- c) Schottky Defect
- d) Interstitial positions

**Q-3:** Which is the best electrical conductor out of  $\text{SiO}_2$  (s), Si (s), NaCl (s) and  $\text{Br}_2$  (l)?

**Q-4:** What can be known from the ionic radius of an ionic solid?

- a) The magnetic property of the solid
- b) The nature of the chemical bond present
- c) The type of defect present in the solid
- d) The geometrical shape of the crystal

**Q-5:** The density of a Li atom is  $0.53 \text{ g cm}^{-3}$  and its edge length is  $3.5 \text{ \AA}$ . Calculate the number of Li atoms present within one unit cell.

**Q-6:** Which of the following substances is ferrimagnetic?

- a)  $\text{TiO}_2$
- b)  $\text{MnO}$
- c)  $\text{CrO}_2$
- d)  $\text{Fe}_3\text{O}_4$

**Q-7:** State the difference between the 13-15 and 12-16 compounds.

**Q-8:** What is the energy gap in band theory?

**Q-9:** The dimensions of a tetragonal lattice are:

- a.)  $a=b=c$ ,  $\alpha=\beta=90^\circ \neq \gamma$
- b.)  $a=b \neq c$ ,  $\alpha=\beta=\gamma=90^\circ$
- c.)  $a \neq b \neq c$ ,  $\alpha=\beta=\gamma=90^\circ$
- d.)  $a=b \neq c$ ,  $\alpha=\beta=90^\circ$ ;  $\gamma=120^\circ$

**Q-10:** Why does the KCl crystal sometimes appear violet in colour?

**Q-11:** Define superconductivity.

**Q-12:** Elaborate the effect of pressure on NaCl type crystals.

**Q-13:** What happens when a ferromagnetic substance is heated to a high temperature?

**Q-14:** AgI crystallises in a CCP ZnS structure. Determine the number of tetrahedral sites occupied by the  $\text{Ag}^+$  ions.

**Q-15:** Metallic lustre can be explained by \_\_\_\_.

- a.) the diffusion of metal ions
- b.) the oscillation of loose electrons
- c.) the existence of BCC lattice
- d.) the excitation of free protons

**Q-16:** Explain why ionic crystals are hard and brittle.

**Q-17:** The possible defect(s) that can occur in AgBr are \_\_\_\_.

- a.) Schottky defect only
- b.) Frenkel defect only
- c.) Both Frenkel and Schottky defect
- d.) None of the above

**Q-18:** Give the significance of lattice points.

**Q-19:** Why is glass called a supercooled liquid?

**Q-20:** Why does the Frenkel defect not occur in pure alkali metal halides?