

## Chemistry Worksheet Class 12 on Chapter 1 Solid State - Set 1

**Q-1:** Pure Silicon and Germanium are\_\_\_\_\_.

- a) Semiconductors
- b) Insulators
- c) Conductors
- d) None of the above

**Q-2:** Among the given crystals, the distance between the cationic and anionic centre is maximum in\_\_\_\_\_.

- a) LiF
- b) CsF
- c) CsI
- d) LiI

**Q-3:** Which type of a semiconductor is formed when Germanium is doped with Indium?

**Q-4:** LiAg, an intermetallic compound, has both its ions crystallised in the cubic lattice each with a coordination number 8. Which kind of a crystal lattice is this?

- a) Face-centred cubic
- b) Body centred cubic
- c) Simple cubic
- d) None of the above

**Q-5:** What does an increase in the pressure and temperature do to a solid crystal structure?

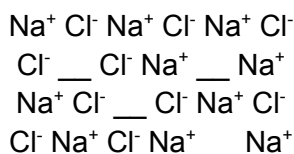
**Q-6:** Schottky defect occurs when\_\_\_\_\_.

- a) An unequal number of the cations and anions are missing from the crystal lattice.
- b) An equal number of cations and anions are missing from the crystal lattice.
- c) A cation enters the interstitial site.
- d) The density of the crystal is increased.

**Q-7:** Calculate the number of unit cells present in 1g NaCl crystals.

**Q-8:** Calculate the molar mass of an element that occurs in a BCC structure with the cell edge of 250 pm. The density of the element is  $8.0 \text{ g cm}^{-3}$ .

**Q-9:** Identify the type of defect represented below:



- a) Schottky Defect
- b) Interstitial Defect
- c) Schottky Defect and Interstitial Defect
- d) Frenkel Defect

**Q-10:** An element occurring in a FCC arrangement with a cell width of 400 pm has an atomic mass of 60 g mol<sup>-1</sup>. Calculate the density of the element.

**Q-11:** Why does potassium sometimes look violet instead of looking pure white?

**Q-12:** Which defect causes a decrease in the density of the ionic crystal?

**Q-13:** State one difference between the properties: Ferromagnetism and Paramagnetism.

**Q-14:** What causes the electrical density in ionic solids and semiconductors?

**Q-15:** The number of octahedral sites per sphere in a FCC structure is \_\_\_\_.

- a) 1
- b) 2
- c) 4
- d) 8

**Q-16:** The formula of Nickel oxide is Ni<sub>0.98</sub>O. In what fractions do the Ni<sup>2+</sup> and Ni<sup>3+</sup> ions exist in the crystal lattice?

**Q-17:** The density of the crystal remains unchanged by \_\_\_\_.

- a) Schottky defect
- b) Interstitial defect
- c) Frenkel defect
- d) All of the above

**Q-18:** Give reason for the following:

CaCl<sub>2</sub> added to AgCl crystal introduces the Schottky defect.

**Q-19:** With which group's element must a group 14 element be doped in order to obtain a n-type semiconductor?

**Q-20:** Distinguish between the hexagonal and monoclinic unit cells.

