ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

FOR GOD AND COUNTRY

SOLUTION-67(CLASS-12)

TOPIC- SOLID STATE

SUBJECT – CHEMISTRY **F.M. - 15**

DURATION – 30 mins **DATE – 16.11.20**

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1. How many unit cells are divided equally in a face-centred cubic lattice?

a. 2
b. 4
c. 6
d. 8

Answer: (c)

2. A crystalline solid:

a. changes abruptly from solid to liquid when heated.
b. has no definite melting point.
c. undergoes deformation of its geometry easily
d. has irregular 3-dimensional arrangements.

Answer: (a)

3. In a simple cubic, body-centred cubic and face-centred cubic structure, the ratio of the number of atoms present is respectively

a. 8:1:6
b. 1:2:4
c. 4:2:1
d. 4:2:3

Answer: (b)

4. Na and Mg crystallize in crystals of bcc and fcc form respectively and then the amount of Na and Mg atoms present in their respective crystal unit cells is:

a. 4 and 2
b. 9 and 14
c. 14 and 9
d. 2 and 4

Answer: (d)

5. Ferrous oxide has a cubic structure and each unit cell edge is 5.0A°. Assuming the oxide density is 4.0g / cm^3, the amount of Fe^{2+} and O^{2-} ions in each unit cell will then be

a. four Fe^{2+} and four O^{2-}
b. two Fe^{2+} and four O^{2-}
c. four Fe^{2+} and two O^{2-}
d. three Fe^{2+} and three O^{2-}

Answer: (a)

6. Each of the following solids shows the Frenkel defect except

a. ZnS
b. AgBr
c. AgI
d. KCl

Answer: (d)

7. Schottky defect in a crystal is observed when

a. The ion leaves its normal position and occupies an interstitial location
b. the unequal number of cation and anions are missing from the lattice
c. the density of the crystal increases.
d. an equal number of cations and anions are missing from the lattice.

Answer: (d)

8. Copper crystalline in FCC with a unit cell length of 361pm. What is the radius of a copper atom?

a. 128pm
b. 157pm
c. 181pm
d. 108pm

Answer: (a)

9. The total no of voids in 0.5 mol of a compound forming hexagonal close-packed structure are:

a. 6.022×10^{23}
b. 3.011×10^{23}
c. 9.033×10^{23}
d. 4.516×10^{23}

Answer: (c)

10. For the orthorhombic system, axial ratios are a ≠ b ≠ c and the axial angles are:

a. $\alpha = \beta = \gamma \neq 90^{o}$
b. $\alpha \neq \beta \neq \gamma \neq 90^{o}$
c. $\alpha = \beta = \gamma = 90^{o}$
d. $\alpha \neq \beta \neq \gamma = 90^{o}$

Answer: (c)

11**. Which one of the following is non-crystalline or amorphous?**
(a) Diamond
(b) Graphite
(c) Glass
(d) Common Salt

Answer: (c)

12. **NaCl typecrystal (with coordination no. 6 : 6) can be converted into CsCl type crystal (with coordination no. 8 : 8) by applying**-
(a) high temperature
(b) high pressure
(c) high temperature and high pressure
(d) low temperature and low pressure
Answer: (b)

13. **In NaCl structure-**
(a) all octahedral and tetrahedral sites are occupied
(b) only octahedral sites are occupied
(c) only tetrahedral sites are occupied
(d) neither octahedral nor tetrahedral sites are occupied
Answer: (b)

14. **Alkali halids do not show Frenkel defect because**-
(a) cations and anions have almost equal size
(b) there is a large difference in size of cations and anions
(c) cations and anions have low coordination number
(d) anions cannot be accommodated in voids
Answer: (a)

15. **Edge length of unit cell of chromium metal is 287 pm with bcc arrangement. The atomic radius is of the order**-
(a) 287 pm
(b) 574 pm
(c) 124.27 pm
(d) 143.5 pm
Answer: (c)

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