

This file was downloaded from the American Curriculum website



State Solid about Worksheet الملف

[Almanahj Website](#) → [American curriculum](#) → [12th Grade](#) → [Chemistry](#) → [Term 1](#) → [The file](#)

More files for 12th Grade , Subject Chemistry , Term 1

[Worksheet about Introduction to Organic Chemistry](#)

1

[CHEMISTRY TEST](#)

2

## 6 Solid State

.The cation leaves its normal position in the crystal and moves to some interstitial position, the defect in the crystal is known as

- a) Schottky defect
- b) F center
- c) Frenkel defect
- d) non-stoichiometric defect

.Assertion: due to Frenkel defect, density of the crystalline solid decreases.

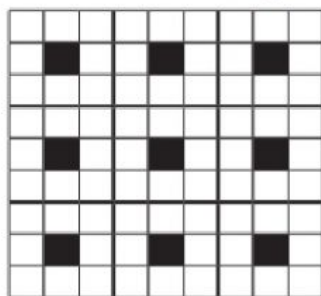
Reason: in Frenkel defect cation and anion leaves the crystal.

- a) Both assertion and reason are true and reason is the correct explanation of assertion.
- b) Both assertion and reason are true but reason is not the correct explanation of assertion.
- c) Assertion is true but reason is false.
- d) Both assertion and reason are false

.The crystal with a metal deficiency defect is

- a) NaCl
- b) FeO
- c) ZnO
- d) KCl

.A two dimensional solid pattern formed by two different atoms X and Y is shown below. The black and white squares represent atoms X and Y respectively. the simplest formula for the compound based on the unit cell from the pattern is



- a)  $XY_8$
- b)  $X_4Y_9$
- c)  $XY_2$
- d)  $XY_4$

Graphite and diamond are

- a) Covalent and molecular crystals
- b) ionic and covalent crystals
- c) both covalent crystals
- d) both molecular crystals

An ionic compound  $A_xB_y$  crystallizes in fcc type crystal structure with B ions at the centre of each face and A ion occupying corners of the cube. the correct formula of  $A_xB_y$  is

- a) AB
- b)  $AB_3$
- c)  $A_3B$
- d)  $A_8B_6$

. If 'a' is the length of the side of the cube, the distance between the body centered atom and one corner atom in the cube will be

- a)  $\left(\frac{2}{\sqrt{3}}\right)a$                       b)  $\left(\frac{4}{\sqrt{3}}\right)a$   
 c)  $\left(\frac{\sqrt{3}}{4}\right)a$                       d)  $\left(\frac{\sqrt{3}}{2}\right)a$

. Potassium has a bcc structure with nearest neighbor distance  $4.52 \text{ \AA}$ . its atomic weight is 39. its density will be

- a)  $915 \text{ kg m}^{-3}$               b)  $2142 \text{ kg m}^{-3}$       c)  $452 \text{ kg m}^{-3}$               d)  $390 \text{ kg m}^{-3}$

. Schottky defect in a crystal is observed when

- a) unequal number of anions and cations are missing from the lattice  
 b) equal number of cations and anions are missing from the lattice  
 c) an ion leaves its normal site and occupies an interstitial site  
 d) no ion is missing from its lattice.

The number of unit cells in 8 gm of an element X ( atomic mass 40) which crystallizes in bcc pattern is ( $N_A$  is the Avogadro number)

- a)  $6.023 \times 10^{23}$                       b)  $6.023 \times 10^{22}$   
 c)  $60.23 \times 10^{23}$                       d)  $\left(\frac{6.023 \times 10^{23}}{8 \times 40}\right)$

In a solid atom M occupies ccp lattice and  $\left(\frac{1}{3}\right)$  of tetrahedral voids are occupied by atom N. find the formula of solid formed by M and N.

- a) MN                      b)  $M_3N$                       c)  $MN_3$                       d)  $M_3N_2$

The ionic radii of  $A^+$  and  $B^-$  are  $0.98 \times 10^{-10} \text{ m}$  and  $1.81 \times 10^{-10} \text{ m}$ . the coordination number of each ion in AB is

- a) 8                      b) 2                      c) 6                      d) 4

. CsCl has bcc arrangement, its unit cell edge length is  $400 \text{ pm}$ , its inter atomic distance is

- a)  $400 \text{ pm}$                       b)  $800 \text{ pm}$                       c)  $\sqrt{3} \times 100 \text{ pm}$                       d)  $\left(\frac{\sqrt{3}}{2}\right) \times 400 \text{ pm}$

. A solid compound XY has NaCl structure. if the radius of the cation is  $100 \text{ pm}$ , the radius of the anion will be

- a)  $\left(\frac{100}{0.414}\right)$                       b)  $\left(\frac{0.732}{100}\right)$                       c)  $100 \times 0.414$                       d)  $\left(\frac{0.414}{100}\right)$

. The vacant space in bcc lattice unit cell is

- a) 48%                      b) 23%                      c) 32%                      d) 26%

. The radius of an atom is 300pm, if it crystallizes in a face centered cubic lattice, the length of the edge of the unit cell is

- a) 488.5pm                      b) 848.5pm                      c) 884.5pm                      d) 484.5pm

. The fraction of total volume occupied by the atoms in a simple cubic is

- a)  $\left(\frac{\pi}{4\sqrt{2}}\right)$                       b)  $\left(\frac{\pi}{6}\right)$                       c)  $\left(\frac{\pi}{4}\right)$                       d)  $\left(\frac{\pi}{3\sqrt{2}}\right)$

. The yellow colour in NaCl crystal is due to

- a) excitation of electrons in F centers  
b) reflection of light from Cl<sup>-</sup> ion on the surface  
c) refraction of light from Na<sup>+</sup> ion  
d) all of the above

. if 'a' stands for the edge length of the cubic system; sc, bcc, and fcc. Then the ratio of radii of spheres in these systems will be respectively.

- a)  $\left(\frac{1}{2}a : \frac{\sqrt{3}}{2}a : \frac{\sqrt{2}}{2}a\right)$                       b)  $\left(\sqrt{1}a : \sqrt{3}a : \sqrt{2}a\right)$   
c)  $\left(\frac{1}{2}a : \frac{\sqrt{3}}{4}a : \frac{1}{2\sqrt{2}}a\right)$                       d)  $\left(\frac{1}{2}a : \sqrt{3}a : \frac{1}{\sqrt{2}}a\right)$

Solid CO<sub>2</sub> is an example of

- a) Covalent solid                      b) metallic solid  
c) molecular solid                      d) ionic solid

Assertion : monoclinic sulphur is an example of monoclinic crystal system

Reason: for a monoclinic system,  $a \neq b \neq c$  and  $\alpha = \gamma = 90^\circ, \beta \neq 90^\circ$

- a) Both assertion and reason are true and reason is the correct explanation of assertion.  
b) Both assertion and reason are true but reason is not the correct explanation of assertion.  
c) Assertion is true but reason is false.  
d) Both assertion and reason are false.

In calcium fluoride, having the fluorite structure the coordination number of Ca<sup>2+</sup> ion and F<sup>-</sup> Ion are (NEET)

- a) 4 and 2                      b) 6 and 6  
c) 8 and 4                      d) 4 and 8

The ratio of close packed atoms to tetrahedral hole in cubic packing is

a) 1:1

b) 1:2

c) 2:1

d) 1:4