



CHEMISTRY

NCERT - FULL MARKS

CHEMISTRY(TAMIL)

SOLID STATE - II

Example

1. Determine the number of formula units of NaCl in one unit cell. NaCl is face centred

cubic.



Watch Video Solution

2. Element 'A' and 'B' form a compound with cubic structure in which 'A' atoms are at the corners of the cube and 'B' atoms at the face centres. What is the formula of the compound ?



Watch Video Solution

Problems For Practice

1. The diffraction of crystal of Ba with X-ray of wavelength 2.29\AA gives a first order reflection at $27^{\circ} 8'$. What is the distance between the diffracted patterns ?



[Watch Video Solution](#)

2. Diffraction angle 2θ equal to 14.8° for a crystal having interplanar distance in the crystal is 0.400 nm when second order

diffraction was observed. Calculate the wavelength of X-ray used.



[Watch Video Solution](#)

3. Find the interplanar distance in a crystal in which a series of planes produce a first order reflection from a copper X-ray tube ($\lambda = 1.542\text{\AA}$) at an angle of 23.2° .



[Watch Video Solution](#)

4. The X-ray of wavelength 1.54 \AA are incident on a crystal having an interatomic distance of 1.6 \AA . Find out the angles at which the first and second order reflection take place.



[Watch Video Solution](#)

5. Calculate the angle at which (a) first order reflection and (b) second order reflection will occur in an X-ray spectrometer when X-ray of wavelength 1.54 \AA are diffracted by the

atoms of a crystal, given that the interplanar distance is 4.04\AA .



[View Text Solution](#)

Self Evaluation A Choose The Correct Answer

1. The number of chloride ions that surrounds the central Na^+ ion in NaCl crystal is _____

A. 12

B. 8

C. 6

D. 4

Answer:



Watch Video Solution

2. The Bragg's equation is _____

A. $\lambda = 2d \sin \theta$

B. $nd = 2\lambda \sin \theta$

C. $2\lambda = nd \sin \theta$

D. $ny = 2d \sin \theta$

Answer:



Watch Video Solution

3. A regular three dimensional arrangement of identical points in space is called

A. Unit cell

B. Space lattice

C. Primitive

D. Crystallography

Answer:



Watch Video Solution

4. The smallest repeating unit in space lattice which when repeated over and over again results in the crystal of the given substance is called

A. Space lattice

B. Crystal lattice

C. Unit cell

D. Isomorphism

Answer:



Watch Video Solution

5. The crystal structure of CsCl is

A. Simple cubic

B. face-centred cubic

C. Tetragonal

D. Body centred cubic

Answer:



Watch Video Solution

6. An example for Frenkel defect is

A. NaCl

B. AgBr

C. CsCl

D. FeS

Answer:



Watch Video Solution

7. Assertion (A): Metals have high thermal conductivity.

Reason (R): Due to thermal excitation of many electrons from the valence band to the

conductance band, metals have high thermal conductivity.

- A. Super conductors
- B. n-type semiconductors
- C. p-type semiconductors
- D. Insulators

Answer:



Watch Video Solution

8. In the Bragg's equation for diffraction of X-rays, 'n' represents

- A. The number of moles
- B. Avogadro number
- C. A quantum number
- D. Order of reflection

Answer:



Watch Video Solution

9. The number of close neighbours in a body centred cubic lattice of identical spheres is

A. 6

B. 4

C. 12

D. 8

Answer:



Watch Video Solution

10. Graphite is a good conductor of electricity due to the presence of _____

- A. Ionic crystals
- B. Molecular crystals
- C. Metallic crystals
- D. Covalent crystals

Answer:



Watch Video Solution

11. In a simple cubic cell, each point on a corner is shared by

A. One unit cell

B. Two unit cell

C. 8 unit cell

D. 4 unit cell

Answer:



Watch Video Solution

12. The materials which conduct electricity at zero resistance are called

- A. Semiconductor
- B. Conductor
- C. Superconductor
- D. Insulator

Answer:



Watch Video Solution

13. The total number of atoms per unit cell is

bcc is _____

A. 1

B. 2

C. 3

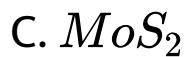
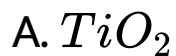
D. 4

Answer:



Watch Video Solution

14. Rutile is



Answer:



Watch Video Solution

15. Pure semiconductors are called

A. rectifiers

B. transistors

C. solar cells

D. all the above

Answer:



Watch Video Solution

16. An example of metal deficiency defect

A. NaCl

B. AgCl

C. CsCl

D. FeS

Answer:



Watch Video Solution

Self Evaluation B Answer In One Or Two Sentences

1. Define the term : space lattice.



[Watch Video Solution](#)

2. State Bragg's law.



[Watch Video Solution](#)

3. The resistance of superconductors is

.....



Watch Video Solution

4. Sketch the (a) simple cubic (b) face-centred cubic and (c) body centred cubic lattices.



Watch Video Solution

5. What is steady state ?



[Watch Video Solution](#)

6. Give two examples for metalloids.



[Watch Video Solution](#)

7. What is coordination number ?



[Watch Video Solution](#)

8. Write a note on the assignment of atoms per unit cell in body centred cubic lattice or CsCl.



Watch Video Solution

9. Write a short note on metallic crystals.



Watch Video Solution

10. How is sucrose formed?



[Watch Video Solution](#)

Self Evaluation C Answer Not Exceeding 60 Words

1. Derive de-Broglie's equation. What is its significance?



[Watch Video Solution](#)

2. Write the properties of ionic crystals.



[Watch Video Solution](#)

3. Explain Schottky defect.



[Watch Video Solution](#)

4. Define specific resistance electrical conductivity ? Give its unit.



[Watch Video Solution](#)

5. What is a rate determining step?



Watch Video Solution

6. Ordinary glass is



Watch Video Solution