

UNIT-6 - SOLID STATE

2 Marks:

1. Define (i) crystal lattice. (ii) Coordination number.
2. What are covalent solids? Give examples.
3. Write a note about molecular solids.
4. What are non polar molecular solids? Give examples.
5. What are polar molecular solids? Give examples
6. What are hydrogen bonded molecular solids? Give examples.
7. What is Bragg's equation?
8. An element with molar mass $2.7 \times 10^{-2} \text{ Kg mol}^{-1}$ forms a cubic unit cell with edge length 405pm. If the density is $2.7 \times 10^3 \text{ Kg m}^{-3}$, what is the nature of the cubic unit cell ?
9. Ionic solids, which have anionic vacancies due to metal excess defects and develop colour. Explain with suitable example. Or (What are F-centers? Explain with example.)
10. What is Isotropy, Anisotropy?
11. What are the characteristic parameters of unit cell?
12. What is packing efficiency? How is it measured?
13. ZnO is colourless at room temperature, while yellow when hot. Why?

3 Marks:

1. Draw the seven types of primitive crystal systems with angles and edge length.
2. Calculate the number of atoms belong to one unit cell of simple cubic unit cell (sc)
3. Calculate the number of atoms per unit cell of (bcc) type.
4. Derive the formula of density of a unit cell?
5. Calculate the packing fraction of simple cubic arrangement.
6. Calculate the packing efficiency in fcc unit cell?
7. How is radius ratio is useful in determination of structure of an ionic compound?
8. What is meant by impurity defect? Explain with example?
9. What are the general characteristics of solids?
10. What are ionic solids? Give their characteristics.
11. An element has face centered cubic unit cell with a length of 352.4 pm along an edge. The density of the element is 8.9 gcm^{-3} . How many atoms are present in 100 g of an element?
12. Determine the density of CsCl which crystallizes in a bcc type structure with an edge length 412.1 pm.
13. A face centered cubic solid of an element (atomic mass 60) has a cube edge of 4 \AA . Calculate its density.

NOTE:

REFER: TEXTBOOK

LEARN AND WRITE APPROPRIATE ANSWER

DRAW DIAGRAM FOR RESPECTIVE QUESTIONS IF NECESSARY

THESE ARE THE IMPORTANT QUESTIONS FROM BOOK INSIDE