PRAADIS EDUCATION

CHEMISTRY XII

1- SOLID STATE

WORKSHEET 1

SUBJECTIVE QUESTIONS

1. Write two conditions on which stable state of given substance depends?
2. What are characteristic properties of solid state?
3. On what basis can solids be classified? Write their classification.
4. Differentiate between crystalline and amorphous solids. Give examples. (minimum 5 points)
5. What makes a glass different from a solid such as quartz? Under what conditions could quartz be converted into glass?
6. Write down the classification of solids on the basis of binding forces.
7. What are molecular solids? Write a note on its types.
8. How do ionic and covalent solids differ from each other?
9. Write a note on metallic solids.
10. What is meant by a crystal lattice? Write its characterstics.
11. What is a unit cell? Write the characterstics of unit cell in a 3D structure.
12. Write a note on types of unit cell. Supplement your answer with the help of corresponding diagrams.
13. Write the axial distance and axial angles for seven crystal systems.

14. Calculate the number of atoms present in: scc, bcc and fcc unit cell.
15. Write down the packing efficiency for: scc, bcc and fcc unit cell.
16. Write a short note on closed packing in 2D.
17. Write a short note on closed packing in 3D.
18. What are interstitial voids? In this reference, explain tetrahedral and octahedral voids.
19. What is the radius ratio in case of tetrahedral and octahedral voids?
20. In closed pack structure of N spheres, there will be 2N tetrahedral holes and _____ octahedral holes.
21. What is meant by packing efficiency in unit cell?
22. Write the order for packing density in the 3 unit cells.
23. What is meant by defects in crystals? Draw a flowchart showing their classification.
24. What are point defects?
25. What are stoichiometric defects? How are they classified?
26. Write a note on schottky defect.
27. Differentiate between schottky and frenkel defect on the basis of density.
28. What are non- stoichiometric defects? How are they classified?
29. What is meant by impurity defect? Give a suitable example.
30. How do electrical properties of solids get altered due to impurity defect?
31. How are solids classified on the basis of band theory?
32. In reference to band theory, explain forbidden energy gap.
33. What are semi-conductors? Write down the effect of temperature on their conductivity.

34. Define doping.
35. Differentiate between n-type and p-type semiconductors. Give suitable examples. (minimum 4 points)
36. Differentiate between intrinsic and extrinsic semiconductors.
37. What are the applications of semiconductors? Enlist any 4.
38. Magnetic properties of solids arise as a result of _____.
39. Magnitude of magnetic moment is very small and is measured in the unit called _____.
40. Write a note on:

i. Paramagnetic substances.
ii. Diamagnetic substances.
iii. Ferromagnetic
iv. antiferromagnetic
v. ferromagnetic