Gurudas College

Internal Assessment Examination, 2021

Subject-CEMA, SEM-IV

Paper- CC-4-9

Time: 30 Minutes   **Full Marks: 10**

Answer _any ten_ questions   **10 x 1 = 10**

1. Write down one application of freezing point depression.
2. Write down the expression of Boiling point elevation constant, K_b, in terms of molar latent heat of vaporization of pure liquid.
3. Define colligative property.
4. What is osmotic pressure?
5. Define heterogeneous system. Give example.
6. Write down the Clapeyron equation in terms of entropy change and volume change.
7. What is triple point?
8. Give the mathematical expression for Compton shift when scattered radiation is perpendicular to the incident radiation.
9. Write the orthonormality condition in Dirac bra-ket notation for two orthogonal vectors ψ and φ.
10. Evaluate the commutator $[x, p_y]$.
11. Draw the ψ^2 vs x plots for particle in 1D box (for n=2).
12. Name the most symmetric and most asymmetric Bravais lattice.
13. Give one advantage of powder method over using single crystal for measuring diffraction pattern.
14. In crystallographic measurement, name the expected and actual diffraction pattern for KCl crystal.
15. Calculate the Miller indices of a crystal plane that cuts the crystal axis at x=2a, y= -3b, z= -c.