## Question Bank

1. Define chemical potential.
2. Give an example of an equilibrium system of
   - i) 2- phase,
   - ii) an invariant system
3. Calculate the degrees of freedom.
   - i) Two partially miscible liquids in the absence of vapor.
   - ii) A solution of a solid in a liquid in equilibrium with solvent vapor
4. How many phases and components present for the following system?
   $MgCO_3(s) \rightleftharpoons MgO(s) + CO_2$ (closed system)
5. What are the number of phases and components for the following reaction in a closed system?
   $NH_4Cl(s) \rightleftharpoons NH_3(g) + HCl(g)$
6. Draw a labeled phase diagram of water system and calculate degree of freedom at triple point and on the vaporization curve.
7. Derive phase rule using thermodynamic principles.
8. In the one component water system why does the fusion curve has a negative slope?
9. What are the phases in equilibrium with each other on the meta stable curve in water system phase diagram?
10. What is reduced phase rule? Describe lead-silver system with the help of a neat labeled diagram. Calculate the degrees of freedom at eutectic point.
11. What is desilverisation of lead?
12. What are cooling curves? How are they useful in construction of phase diagrams?
13. For Pb-Ag system, calculate the degrees of freedom at eutectic point and mention the temperature and pressure corresponding to eutectic point