Quiz

1. Define a phase? What is Gibbs phase rule?
2. What is isomorphous system? Give example of an ispmorphous sytem.
3. Why does a liquid metal solidify at constant temperature?
4. What is a tie line. What is lever rule?
5. How is the liquidus and solidus curves of a binary isomorphous system determined experimentally? (Clue: Refer to the cooling curves)
6. What is an invariant reaction? Give some examples.
7. What kind of system will result when melting points two metals having limited solubility in each other are (i) comparable (ii) significantly different?
8. What is a solvus line?
9. What is eutectic? Why there is infliction in the cooling curve of a hypoeutectic alloy in the two-phase region?
10. Why does the eutectic reaction happen at a constant temperature?
11. Why Pb-Sn alloys are used as solders?
12. What are terminal and intermediate phases?
13. What is an intermetallic compound?
14. What are the typical phases present in Brass (Cu-Zn)?
15. How is the composition of an alloy determined in a ternary system?
16. What is monotectic reaction?
17. A Pb-Sn alloy contains 64 wt% proeutectic α and rest eutectic ($\alpha+\beta$) just below 183 °C. Find out the average composition. (Consult Example #2)
18. A 35 wt% Ni Cu-Ni alloy is heated to the two-phase region. If the composition of the α phase is 70% Ni find out (i) the temperature, (ii) the composition of the liquid phase and (iii) the mass fraction of both phases. (Consult a Cu-Ni phase diagram)