Session #35: Homework Problems

Problem #1

(a) For each of the following Ag-Cu alloys state all phases present at the specified compositions and temperatures. Phase diagram given below.

(i) \( c = 20 \) atomic per cent Cu, \( T = 900^\circ C \)
(ii) \( c = 20 \) atomic per cent Cu, \( T = 800^\circ C \)
(iii) \( c = 20 \) atomic per cent Cu, \( T = 700^\circ C \)
(iv) \( c = 5 \) atomic per cent Cu, \( T = 700^\circ C \)
(v) \( c = 80 \) atomic per cent Cu, \( T = 800^\circ C \)

(b) For the Ag-Cu alloy, \( c = 70 \) atomic per cent copper, calculate the relative amounts of all phases present at \( T = 600^\circ C \).

![Phase diagram for Ag-Cu alloy](image)

Problem #2

(a) For each of the following Pb-Sn alloys state all phases present at the specified compositions and temperatures. Phase diagram given on the following page.

(i) \( c = 10 \) atomic per cent Pb, \( T = 300^\circ C \)
(ii) \( c = 10 \) atomic per cent Pb, \( T = 200^\circ C \)
(iii) \( c = 10 \) atomic per cent Pb, \( T = 100^\circ C \)
(iv) \( c = 90 \) atomic per cent Pb, \( T = 200^\circ C \)
(v) \( c = 60 \) atomic per cent Pb, \( T = 200^\circ C \)
(b) For the Pb-Sn alloy, c = 60 atomic per cent lead, calculate the relative amounts of all phases present at T = 200°C.